

From: Watts, John (Feinstein)

Sent: Wednesday, September 3, 2014 10:36 AM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mw2dh.com) (rpatterson@mw2dh.com); Brenda W Burman; Bernhardt, David L.; Fullerton, David K (dfullerton@mw2dh.com)

CC: Yeung, Felix (Feinstein)

Subject: Request for call later today or tomorrow on confidential Administration smelt language

Attachments: smelt language admin 8-28-14.docx

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- Discussion of the possibility of any more specificity on the monitoring to be conducted during periods of high turbidity from December to March."

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Best,

John

Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE.

SEC. 101. FINDINGS.

Congress finds that—

- (1) The 2008 smelt biological opinion and 2009 salmon biological opinion contain reasonable and prudent alternatives to avoid jeopardizing the continued existence of fish species listed under the Endangered Species Act and destruction or adverse modification of their critical habitat by operation of the Central Valley Project and State Water Project.
- (2) Among other things, the reasonable and prudent alternatives in the biological opinions contain measures that can restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.
- (3) The demand for reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs for various regions south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range within the South of Delta and Friant Division of the Central Valley Project and the State Water Project significantly exceeds available supplies.
- (4) These current biological opinions authorize and encourage opportunities to adjust operations based upon new scientific information in order to preserve the protections afforded listed fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.
- (5) In 2014, additional information exists than was known in 2008 concerning conditions and operations that may jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.
- (6) Alternative management strategies, such as removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time may contribute to protecting and recovering these listed fish species, and at potentially lower costs to water supplies.
- (7) Additional research should be done to determine the effectiveness of management strategies that do not affect water delivery management strategies, such as removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time, in protecting and recovering these imperiled fish species that are addressed in the 2008 and 2009 biological opinions.

SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

(a) In General.—Consistent with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (including regulations) and subsection (b), the Director of the Fish and Wildlife Service shall work in a collaborative fashion to better understand methods of reducing entrainment risk to delta smelt and better understand delta smelt population effects as a result of entrainment. To accomplish these goals, the Service will

(1) use the best scientific and commercial data;

(2) use:

(A) new and updated statistical models, especially the delta smelt life history model;

(B) updated scientific data, especially data gained from surveys specifically designed to study delta smelt distribution and abundance and the early warning surveys; and

(C) studies designed specifically to improve understanding of delta smelt entrainment dynamics; and

(3) endeavor to understand loss of delta smelt due to entrainment and the population level impact of entrainment while allowing operations according to the reasonable and prudent alternatives described in the smelt biological opinion.

(b) Modified Incidental Take Limit [Level].— No later than October 1, 2015, the Service shall will use the best scientific and commercial data and best science, to include new and improved modeling, to complete a review and modification incorporate revised incidental take limits, if warranted, of the incidental take level in the smelt all new biological opinions, including revisions of existing opinions, that address delta smelt entrainment.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion shall be implemented consistent with the best scientific and commercial data available.

(b) Increased Monitoring to Inform Real-time Operations.— On an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Director shall—

(1) use the best survey methods at the most appropriate locations to detect adult delta smelt that might be associated with increased turbidity; and

(2) use results from those survey methods to help determine how data from increased surveys can improve risk assessment for delta smelt entrainment that may result from maximum rates of exports.

(c) Periodic Review of Monitoring.—At least once every 5 years, the Director shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the delta, is providing sufficient data to inform operations; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— the United States Fish and Wildlife Service, in collaboration with other delta science partners, shall implement surveys specifically designed to understand

delta smelt abundance and distribution.

(2) SAMPLING.— the sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to best understand delta smelt abundance, distribution, and movements throughout the Bay Delta during all seasons; and

(C) will use the best survey methods, including sampling gear.

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.— Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December through June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether the early warning surveys conducted at the most appropriate locations pursuant to this section or other risk factors indicate that a significant increase in the entrainment of Delta smelt is imminent; and

(B) whether environmental conditions, results from early warning surveys, turbidity modeling, particle tracking, or any and all other relevant scientific or commercial information indicate under prevailing conditions that OMR flow more restrictive than - 5000 cfs is needed to avoid a significant probability of substantially increased take of delta smelt.

(f) Level of Detail Required for Analysis.—In documenting the determinations under subsection (e), the Secretary shall fully satisfy the requirements of paragraphs (1) and (2) of subsection (e) but is not required to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely decision making in response to changing conditions in the Delta.

From: Patterson,Roger K
Sent: Wednesday, September 3, 2014 11:01 AM
To: Watts, John (Feinstein); 'Tom Birmingham'; Burman,Brenda W; Bernhardt, David L.; Fullerton,David K
CC: Yeung, Felix (Feinstein)
Subject: RE: Request for call later today or tomorrow on confidential Administration smelt language

John – I'm available between 2:30 and 5:00 Pacific time. Could arrange to do earlier if necessary.

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Wednesday, September 03, 2014 10:36 AM
To: 'Tom Birmingham'; Patterson,Roger K; Burman,Brenda W; Bernhardt, David L.; Fullerton,David K
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CC: Yeung, Felix (Feinstein)
Subject: RE: Request for call later today or tomorrow on confidential Administration smelt language

Let's plan to talk at 2:30 pacific time, 5:30 eastern time. Roger, can we use your call-in number?

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Sent: Wednesday, September 03, 2014 2:12 PM
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Yes – 213-217-7888 7781#

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From: Bernhardt, David L.

Sent: Wednesday, September 3, 2014 5:26 PM

To: Brenda Burman; Thomas W. (Tom) Birmingham Esq.

Subject: Redline

Attachments: REDLINE_11543401v1_Johnssubmission - 11543293v1_Administrationslanguage.pdf; ATT00001.htm; REDLINE_11543401v1_Johnssubmission - 11543293v1_Administrationslanguage (11543454-1).DOCX; ATT00002.htm

Brenda and Tom: Here is a redline of the original. I think it is completely unhelpful, but I'm sending it to you because I said I would. I will do a separate redline to their document, with suggested revisions based on the original that was sent, which could serve as the pass back, which I will send you in the morning.

David

STATEMENT OF CONFIDENTIALITY & DISCLAIMER: The information contained in this email message is attorney privileged and confidential, intended only for the use of the individual or entity named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copy of this email is strictly prohibited. If you have received this email in error, please notify us immediately by calling (303)-223-1300 and delete the message. Thank you.

~~Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME~~
~~MONITORING AND UPDATED SCIENCE.~~

SEC. ~~2.~~101. FINDINGS.

Congress finds that—

(1) The 2008 smelt biological opinion and 2009 salmon biological opinion contain reasonable and prudent alternatives to ~~protect endangered fish species from being harmed~~avoid jeopardizing the continued existence of fish species listed under the Endangered Species Act and destruction or adverse modification of their critical habitat by operation of the Central Valley Project and State Water Project.

(2) ~~These~~Among other things, the reasonable and prudent alternatives in the biological opinions contain measures that can restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(3) ~~Data on the difference between water~~The demand ~~and reliable water supplies for various regions south of the delta, including the San Joaquin Valley, indicate there is a significant annual gap between~~for reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs for various regions south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range within the South of Delta and Friant Division of the Central Valley Project and the State Water Project ~~south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range and the demands of those areas. This gap varies depending on the methodology of the analysis performed, but can include representation in the following ways:~~significantly exceeds available supplies.

~~(a) For Central Valley Project South of Delta water service contractors, if it is assumed that a water supply deficit is the difference in the amount of water available for allocation versus the maximum contract quantity, particularly in more recent years, then the water supply deficits that have developed from 1992 to 2014 as a result of changes besides natural variations in hydrology during this timeframe range between 720,000 and 1,100,000 acre feet.~~

~~(b) For Central Valley Project and State Water Project water service contractors south of the Delta and north of the Tehachapi mountain range, if it is assumed that a water supply deficit is the difference between reliable water supplies, including maximum water contract deliveries, safe yield of groundwater, safe yield of local and surface supplies and long term contracted water transfers, and water demands, including water demands from agriculture, municipal and industrial and refuge contractors, then the water supply deficit ranges between approximately 2,500,000 to 2,700,000 acre feet.~~

~~(c) State's analysis (pending information from DWR, ETA early week of 8/25)~~

~~(4) Since the issuance of the biological opinions, considerably uncertainty still exists about the benefits to endangered fish populations from water pumping restrictions. For~~

~~example, hydrodynamic data, acoustic telemetry studies, and other recent studies found that through Delta survival rates of salmonid species do not correlate directly and clearly with certain water pumping restrictions, in particular limitations to Old and Middle River flows to levels less negative than -5000 cubic feet per second.~~

~~(5) Data of pumping activities at the Central Valley Project and State Water Project delta pumps identifies that, on average from 2008 to 2014, pumping activity takes 893 delta smelt annually with an authorized take level of 5,003 delta smelt annually—according to the biological opinion issued December 15, 2008.~~

~~(6) It is worth exploring whether there is a way to implement the~~(4) ~~These current biological opinions that would~~authorize and encourage opportunities to adjust operations based upon new scientific information in order to preserve the protections afforded ~~endangered~~listed fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

~~(7)~~5 In 2014, ~~better~~additional information exists than was known in 2008 concerning conditions and operations that may ~~or may not lead to high salvage events that~~ jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

~~(8)~~6 Alternative management strategies, such as ~~trapping and barging juvenile salmon through the Delta~~, removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time ~~can~~may contribute ~~significantly~~ to protecting and recovering these ~~endangered~~listed fish species, and at potentially lower costs to water supplies.

~~SEC. 3. DEFINITIONS.~~

In this Act:

~~(1) DELTA.—The term “Delta” means the Sacramento-San Joaquin Delta and the Suisun Marsh, as defined in sections 12220 and 29101 of the California Public Resources Code.~~

~~(2) OMR.—The term “OMR” means the Old and Middle River in the Delta.~~

~~(3) OMR FLOW OF -5000 CFS.—The term “OMR flow of -5000 cfs” means Old and Middle River flow of negative 5,000 cubic feet per second as measured by—~~

~~(A) the smelt biological opinion; and~~

~~(B) the salmonid biological opinion.~~

~~(4) SALMONID BIOLOGICAL OPINION.—The term “salmonid biological opinion” means the biological opinion issued by the National Marine Fisheries Service on June 4, 2009.~~

~~(5) SMELT BIOLOGICAL OPINION.—The term “smelt biological opinion” means the biological opinion on the Long-Term Operational Criteria and Plan for coordination of the~~

~~Central Valley Project and State Water Project issued by the United States Fish and Wildlife Service on December 15, 2008.~~

~~(6) STATE.— The term “State” means the State of California.~~

~~(7) TO AVOID JEOPARDY.— The term “to avoid jeopardy” means to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.~~ Additional research should be done to determine the effectiveness of management strategies that do not affect water delivery management strategies, such as removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time, in protecting and recovering these imperiled fish species that are addressed in the 2008 and 2009 biological opinions.

~~TITLE I — ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE~~

~~SEC. 101. DEFINITIONS.~~

In this title:

~~(1) DIRECTOR.— The term “Director” means the Director of the United States Fish and Wildlife Service.~~

~~(2) DELTA SMELT.— The term “delta smelt” means the fish species with the scientific name *Hypomesus transpacificus*.~~

~~(3) SECRETARY.— The term “Secretary” means the Secretary of the Interior.~~

~~SEC~~ SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

(a) In General.— ~~Not later than October 1, 2015, consistent~~ Consistent with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (including regulations) and subsection (b), the Director ~~shall modify the method of calculating the incidental take level in the smelt biological opinion—~~ of the Fish and Wildlife Service shall work in a collaborative fashion to better understand methods of reducing entrainment risk to delta smelt and better understand delta smelt population effects as a result of entrainment. To accomplish these goals, the Service will

(1) ~~to use the best salvage information available from 1993 to 2012~~ scientific and commercial data;

(2) ~~to take into account—~~ use:

(A) new and updated statistical models, especially the delta smelt life history model;

(B) updated scientific data, especially data gained from surveys specifically designed to study delta smelt distribution and abundance and the early warning surveys; and

- (C) ~~improved~~ studies designed specifically to improve understanding of ~~Delta~~ delta smelt entrainment dynamics; and
- (3) ~~to better represent actual~~ endeavor to understand loss of delta smelt due to entrainment and the population level impact of entrainment while allowing operations according to the reasonable and prudent alternatives described in the smelt biological opinion.
- (b) Modified Incidental Take ~~Level. Unless the Director determines in writing that all or part of the requirements described in paragraphs (1) through (4) are not appropriate, the modified incidental take level described in subsection (a) shall~~ Limit [Level].— No later than October 1, 2015, the Service shall use the best scientific and commercial data and best science, including new and improved modeling, to complete a review and modification, if warranted, of the incidental take level in the smelt biological opinion.
- ~~(1) be normalized for the abundance of prespawning adult Delta smelt using the Fall Midwater Trawl Index or other index;~~
- ~~(2) be based on a simulation of the salvage that would have occurred from 1993 through 2012 if OMR flow had been consistent with the smelt biological opinion;~~
- ~~(3) base that simulation on a correlation between annual salvage rates and historic water clarity and OMR flow during the adult salvage period; and~~
- ~~(4) set the incidental take level as the 80 percent upper prediction interval derived from simulated salvage rates from 1993 through 2012.~~

~~SEC~~ SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

- (a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion shall be implemented consistent with the best scientific and commercial data available.
- (b) Increased Monitoring to Inform Real-time Operations.—~~Effective during the period beginning on December 1, 2014 and ending March 31, 2015, and in each successive December through March period, if high suspended sediment loads enter the Delta from the Sacramento River and appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units to values above 12 Nephelometric Turbidity Units~~ On an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Director shall—
- (1) ~~conduct daily Kodiak Trawls in Old River in the vicinity of Station 902~~ use the best survey methods at the most appropriate locations to detect adult ~~Delta~~ delta smelt that might be ~~moving within the~~ associated with increased turbidity ~~cloud toward the export pumps~~; and
- (2) use results from those ~~trawls~~ survey methods to help determine how data from increased ~~trawling can inform in real time the~~ surveys can improve risk assessment for delta smelt entrainment that may result from maximum rates of exports ~~without risk of causing jeopardy.~~

(c) Periodic Review of Monitoring.—At least once every 5 years, the Director shall—

- (1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the ~~Delta~~delta, is providing sufficient data to inform operations; and
- (2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.—~~In 2015, and every five years thereafter,~~ the United States Fish and Wildlife Service ~~shall perform targeted sampling studies and monitoring to determine the geographic areas and types of habitat occupied by delta smelt during all life stages, in collaboration with other delta science partners, shall implement surveys specifically designed to understand delta smelt abundance and distribution.~~

(2) SAMPLING.—~~The~~ the sampling—

- (A) shall include recording water quality and tidal data;
- (B) ~~should generally occur in areas not routinely sampled by existing monitoring programs, including wetland channels, near shore water, depths below 35 feet, and shallow water; and~~ will be designed to best understand delta smelt abundance, distribution, and movements throughout the Bay Delta during all seasons; and
- (C) ~~may require sampling gears not used during existing monitoring programs.~~ will use the best survey methods, including sampling gear.

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December ~~to~~ through June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

- (1) consider the relevant provisions of the biological opinion or any successor opinion;
- (2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether ~~targeted real-time fish monitoring in Old River in the vicinity of Bacon Island~~ the early warning surveys conducted at the most appropriate locations pursuant to this section ~~indicates~~ or other risk factors indicate that a significant increase in the ~~salvage~~ entrainment of Delta smelt is imminent; and

(B) whether ~~near term forecasts with available salvage models show~~ environmental conditions, results from early warning surveys, turbidity modeling, particle tracking, or any and all other relevant scientific or commercial information indicate under prevailing conditions that OMR flow ~~of more restrictive than~~ -5000 cfs ~~will cause is needed to avoid a significant probability of~~ substantially increased take of delta smelt; and

~~(3) document—~~

~~(A) the basis for the determination of the Secretary to require raised or lowered OMR~~

~~flow level within the range established by the smelt biological opinion or any successor biological opinion, including an explanation of the data examined and the connection between the data and the choice made; and~~

~~(B) a showing that any limitation of OMR flow to levels less negative than 5000 cubic feet per second in the short term is necessary to avoid jeopardy after considering other alternatives, if any, that may have a lesser water supply impact. In making any such showing, the Secretary shall consider the effects of managing negative flow in Old and Middle River flow consistent with the definition of “effects of the action” contained at 50 C.F.R. Part 402.02 and the definitions included in this title.~~

(f) Level of Detail Required for Analysis.—In documenting the determinations under subsection (e), the Secretary shall fully satisfy the requirements of paragraphs (1) ~~through~~and (3~~2~~) of subsection (e) but is not required to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely ~~decisionmaking~~decision making in response to changing conditions in the Delta.

Document comparison by Workshare Compare on Wednesday, September 03, 2014 7:34:57 PM

Input:	
Document 1 ID	interwovenSite://DMS/ACTIVE/11543401/1
Description	#11543401v1<ACTIVE> - Johnssubmission
Document 2 ID	interwovenSite://DMS/ACTIVE/11543293/1
Description	#11543293v1<ACTIVE> - Administrationslanguage
Rendering set	bhfs standard

Legend:	
<u>Insertion</u>	
Deletion	
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Padding cell	

Statistics:	
	Count
Insertions	61
Deletions	88
Moved from	3
Moved to	3
Style change	0
Format changed	0
Total changes	155

**Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME
MONITORING AND UPDATED SCIENCE.**

SEC. ~~2.~~ 101. FINDINGS.

Congress finds that—

(1) The 2008 smelt biological opinion and 2009 salmon biological opinion contain reasonable and prudent alternatives to ~~protect endangered fish species from being harmed~~ avoid jeopardizing the continued existence of fish species listed under the Endangered Species Act and destruction or adverse modification of their critical habitat by operation of the Central Valley Project and State Water Project.

(2) ~~These~~ Among other things, the reasonable and prudent alternatives in the biological opinions contain measures that can restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(3) ~~Data on the difference between water~~ The demand and reliable water supplies for various regions south of the delta, including the San Joaquin Valley, indicate there is a significant annual gap between for reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs for various regions south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range within the South of Delta and Friant Division of the Central Valley Project and the State Water Project south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range and the demands of those areas. This gap varies depending on the methodology of the analysis performed, but can include representation in the following ways: significantly exceeds available supplies.

(a) ~~For Central Valley Project South of Delta water service contractors, if it is assumed that a water supply deficit is the difference in the amount of water available for allocation versus the maximum contract quantity, particularly in more recent years, then the water supply deficits that have developed from 1992 to 2014 as a result of changes besides natural variations in hydrology during this timeframe range between 720,000 and 1,100,000 acre feet.~~

(b) ~~For Central Valley Project and State Water Project water service contractors south of the Delta and north of the Tehachapi mountain range, if it is assumed that a water supply deficit is the difference between reliable water supplies, including maximum water contract deliveries, safe yield of groundwater, safe yield of local and surface supplies and long-term contracted water transfers, and water demands, including water demands from agriculture, municipal and industrial and refuge contractors, then the water supply deficit ranges between approximately 2,500,000 to 2,700,000 acre feet.~~

~~(c) State's analysis (pending information from DWR, ETA early week of 8/25)~~

~~(4) Since the issuance of the biological opinions, considerably uncertainty still exists about the benefits to endangered fish populations from water pumping restrictions. For~~

~~example, hydrodynamic data, acoustic telemetry studies, and other recent studies found that through Delta survival rates of salmonid species do not correlate directly and clearly with certain water pumping restrictions, in particular limitations to Old and Middle River flows to levels less negative than 5000 cubic feet per second.~~

~~(5) Data of pumping activities at the Central Valley Project and State Water Project delta pumps identifies that, on average from 2008 to 2014, pumping activity takes 893 delta smelt annually with an authorized take level of 5,003 delta smelt annually—according to the biological opinion issued December 15, 2008.~~

~~(6) It is worth exploring whether there is a way to implement the~~(4) These current biological opinions that would authorize and encourage opportunities to adjust operations based upon new scientific information in order to preserve the protections afforded endangered listed fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

~~(75) In 2014, better~~additional information exists than was known in 2008 concerning conditions and operations that may ~~or may not lead to high salvage events that~~ jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

~~(86) Alternative management strategies, such as trapping and barging juvenile salmon through the Delta, removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time can~~may contribute significantly to protecting and recovering these endangered listed fish species, and at potentially lower costs to water supplies.

~~SEC. 3. DEFINITIONS.~~

~~In this Act:~~

~~(1) DELTA.—The term “Delta” means the Sacramento-San Joaquin Delta and the Suisun Marsh, as defined in sections 12220 and 29101 of the California Public Resources Code.~~

~~(2) OMR.—The term “OMR” means the Old and Middle River in the Delta.~~

~~(3) OMR FLOW OF 5000 CFS.—The term “OMR flow of 5000 cfs” means Old and Middle River flow of negative 5,000 cubic feet per second as measured by—~~

~~(A) the smelt biological opinion; and~~

~~(B) the salmonid biological opinion.~~

~~(4) SALMONID BIOLOGICAL OPINION.—The term “salmonid biological opinion” means the biological opinion issued by the National Marine Fisheries Service on June 4, 2009.~~

~~(5) SMELT BIOLOGICAL OPINION.—The term “smelt biological opinion” means the biological opinion on the Long-Term Operational Criteria and Plan for coordination of the~~

~~Central Valley Project and State Water Project issued by the United States Fish and Wildlife Service on December 15, 2008.~~

~~(6) STATE.— The term “State” means the State of California.~~

~~(7) TO AVOID JEOPARDY.— The term “to avoid jeopardy” means to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Additional research should be done to determine the effectiveness of management strategies that do not affect water delivery management strategies, such as removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time, in protecting and recovering these imperiled fish species that are addressed in the 2008 and 2009 biological opinions.~~

~~TITLE I — ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL TIME MONITORING AND UPDATED SCIENCE~~

~~SEC. 101. DEFINITIONS.~~

~~In this title:~~

~~(1) DIRECTOR.— The term “Director” means the Director of the United States Fish and Wildlife Service.~~

~~(2) DELTA SMELT.— The term “delta smelt” means the fish species with the scientific name *Hypomesus transpacificus*.~~

~~(3) SECRETARY.— The term “Secretary” means the Secretary of the Interior.~~

~~SEC.~~ SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

(a) In General.— ~~Not later than October 1, 2015, consistent~~ Consistent with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (including regulations) and subsection (b), the Director ~~shall modify the method of calculating the incidental take level in the smelt biological opinion—~~ of the Fish and Wildlife Service shall work in a collaborative fashion to better understand methods of reducing entrainment risk to delta smelt and better understand delta smelt population effects as a result of entrainment. To accomplish these goals, the Service will

(1) ~~to use the best salvage information available from 1993 to 2012~~ scientific and commercial data;

(2) ~~to take into account—~~ use:

(A) new and updated statistical models, especially the delta smelt life history model;

(B) updated scientific data, especially data gained from surveys specifically designed to study delta smelt distribution and abundance and the early warning surveys; and

- (C) ~~improved studies designed specifically to improve~~ understanding of ~~Deltadelta~~ smelt entrainment dynamics; and
- (3) ~~to better represent actual endeavor to understand loss of delta smelt due to~~ entrainment and the population level impact of entrainment while allowing operations according to the reasonable and prudent alternatives described in the smelt biological opinion.
- (b) Modified Incidental Take ~~Level.~~ ~~Unless the Director determines in writing that all or part of the requirements described in paragraphs (1) through (4) are not appropriate, the modified incidental take level described in subsection (a) shall~~ Limit [Level]. ~~— No later than October 1, 2015, the Service shall use the best scientific and commercial data and best science, including new and improved modeling, to complete a review and modification, if warranted, of the incidental take level in the smelt biological opinion.~~
- (1) ~~be normalized for the abundance of prespawning adult Delta smelt using the Fall Midwater Trawl Index or other index;~~
- (2) ~~be based on a simulation of the salvage that would have occurred from 1993 through 2012 if OMR flow had been consistent with the smelt biological opinion;~~
- (3) ~~base that simulation on a correlation between annual salvage rates and historic water clarity and OMR flow during the adult salvage period; and~~
- (4) ~~set the incidental take level as the 80 percent upper prediction interval derived from simulated salvage rates from 1993 through 2012.~~

~~SEC~~SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

- (a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion shall be implemented consistent with the best scientific and commercial data available.
- (b) Increased Monitoring to Inform Real-time Operations.—~~Effective during the period beginning on December 1, 2014 and ending March 31, 2015, and in each successive December through March period, if high suspended sediment loads enter the Delta from the Sacramento River and appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units to values above 12 Nephelometric Turbidity Units~~ On an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Director shall—
- (1) ~~conduct daily Kodiak Trawls in Old River in the vicinity of Station 902 use the best survey methods at the most appropriate locations~~ to detect adult ~~Deltadelta~~ smelt that might be ~~moving within the associated with increased~~ turbidity ~~cloud toward the export pumps~~; and
- (2) use results from those ~~trawl survey methods~~ to help determine how data from increased ~~trawling can inform in real time the surveys can improve risk assessment for delta smelt entrainment that may result from~~ maximum rates of exports ~~without risk of causing jeopardy.~~

(c) Periodic Review of Monitoring.—At least once every 5 years, the Director shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the ~~Delta~~delta, is providing sufficient data to inform operations; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.—~~In 2015, and every five years thereafter,~~ the United States Fish and Wildlife Service ~~shall perform targeted sampling studies and monitoring to determine the geographic areas and types of habitat occupied by delta smelt during all life stages, in collaboration with other delta science partners, shall implement surveys specifically designed to understand delta smelt abundance and distribution.~~

(2) SAMPLING.—~~The~~ the sampling—

(A) shall include recording water quality and tidal data;

(B) ~~should generally occur in areas not routinely sampled by existing monitoring programs, including wetland channels, near shore water, depths below 35 feet, and shallow water; and will be designed to best understand delta smelt abundance, distribution, and movements throughout the Bay Delta during all seasons; and~~

(C) ~~may require sampling gears not used during existing monitoring programs. will use the best survey methods, including sampling gear.~~

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December ~~to~~through June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether ~~targeted real-time fish monitoring in Old River in the vicinity of Bacon Island~~ the early warning surveys conducted at the most appropriate locations pursuant to this section ~~indicates~~or other risk factors indicate that a significant increase in the ~~salvage~~entrainment of Delta smelt is imminent; and

(B) whether ~~near term forecasts with available salvage models show~~environmental conditions, results from early warning surveys, turbidity modeling, particle tracking, or any and all other relevant scientific or commercial information indicate under prevailing conditions that OMR flow ~~of more restrictive than~~ -5000 cfs ~~will cause~~is needed to avoid a significant probability of substantially increased take of delta smelt; ~~and.~~

~~(3) document—~~

~~(A) the basis for the determination of the Secretary to require raised or lowered OMR~~

~~flow level within the range established by the smelt biological opinion or any successor biological opinion, including an explanation of the data examined and the connection between the data and the choice made; and~~

~~(B) a showing that any limitation of OMR flow to levels less negative than 5000 cubic feet per second in the short term is necessary to avoid jeopardy after considering other alternatives, if any, that may have a lesser water supply impact. In making any such showing, the Secretary shall consider the effects of managing negative flow in Old and Middle River flow consistent with the definition of “effects of the action” contained at 50 C.F.R. Part 402.02 and the definitions included in this title.~~

(f) Level of Detail Required for Analysis.—In documenting the determinations under subsection (e), the Secretary shall fully satisfy the requirements of paragraphs (1) ~~through and~~ (32) of subsection (e) but is not required to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely ~~decisionmaking~~ decision making in response to changing conditions in the Delta.

From: Bernhardt, David L.
Sent: Thursday, September 4, 2014 7:50 AM
To: Brenda Burman (bburman@tnc.org)
CC: Thomas W. Birmingham (tbirmingham@westlandswater.org)
Subject: Redline of admin Draft
Attachments: smelt language admin 8-28-14 (11543843-1).DOCX

Brenda: Here is a reline of the what I think are the needed changes to the administration's draft, except for those that I thought were in your wheelhouse. If you can work on those portions and review the changes I suggest and then pass it back to me, we can confer and then send it to Roger and Tom. I did not change the incidental take language since Roger and Tom are going to talk to Ren. I also operated on the theory that we were trying to make the minimal changes possible. For example, I avoided any changes to the findings.

Best,
David

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Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE.

SEC. 101. FINDINGS.

Congress finds that—

(1) The 2008 smelt biological opinion and 2009 salmon biological opinion contain reasonable and prudent alternatives to avoid jeopardizing the continued existence of fish species listed under the Endangered Species Act and destruction or adverse modification of their critical habitat by operation of the Central Valley Project and State Water Project.

(2) Among other things, the reasonable and prudent alternatives in the biological opinions contain measures that can restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(3) The demand for reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs for various regions south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range within the South of Delta and Friant Division of the Central Valley Project and the State Water Project significantly exceeds available supplies.

(4) These current biological opinions authorize and encourage opportunities to adjust operations based upon new scientific information in order to preserve the protections afforded listed fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

(5) In 2014, additional information exists than was known in 2008 concerning conditions and operations that may jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

(6) Alternative management strategies, such as removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time may contribute to protecting and recovering these listed fish species, and at potentially lower costs to water supplies.

(7) Additional research should be done to determine the effectiveness of management strategies that do not affect water delivery management strategies, such as removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time, in protecting and recovering these imperiled fish species that are addressed in the 2008 and 2009 biological opinions.

SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

(a) In General.—Not later than _____, consistent with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (including regulations) and subsection (b), the Director of the Fish and Wildlife Service shall modify the incidental take level in the smelt biological opinion work in a collaborative fashion to better understand methods of reducing entrainment risk to delta smelt and better understand delta smelt population effects as a result of

Commented [BHFS1]: I did not change the findings. This is a pure policy fight and based on a standard of what is absolutely necessary to change I don't think these need to go, but I think the House will insist on a host of other changes because this tilts the bill.

Commented [BHFS2]: The definitions section is missing, so for the purposes of this draft, I am assuming that the definitions are coming back in. If they were not, there would need to be additional modifications here.

~~entrainment. To accomplish these goals, the Service will~~

(1) ~~to use the~~ the best salvage information available from 1993 to the most current year for which data are available ~~best scientific and commercial data;~~

(2) ~~to take into account~~use:

(A) new and updated statistical ~~models, especially the delta smelt life history model~~models;

(B) updated scientific data, especially data gained from surveys specifically designed to study delta smelt distribution and abundance and the early warning surveys; and

(C) studies designed specifically to improve understanding of delta smelt entrainment dynamics; and

(3) ~~to better represent actual endeavor to understand loss of delta smelt due to~~ entrainment and the population level impact of entrainment while ~~providing for allowing~~ operations ~~consistent with according to~~ the reasonable and prudent alternatives described in the smelt biological opinion.

(b) ~~Modified~~ Incidental Take Limit [Level].— ~~No later than October 1, 2015, the Service shall will~~ shall use the best scientific and commercial data and best science, to ~~including~~including new and improved modeling, to ~~complete a review and~~ ~~modification~~ incorporate revised incidental take limits, if warranted, ~~of the incidental take level in the smelt~~all new biological opinions, including revisions of existing opinions, that address delta smelt entrainment.

Commented [BHFS3]: Roger and Tom are going to talk to Ren about this.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion shall be implemented consistent with the best scientific and commercial data available.

(b) Increased Monitoring to Inform Real-time ~~Operations~~.— On an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Director shall—

Commented [BHFS4]: Brenda it is my understanding from the call that you will work with your team on what monitoring and surveys should be required, so I am not putting that in.

(1) use the best survey methods at the most appropriate locations to detect adult delta smelt that might be associated with increased ~~turbidity~~; and

Commented [BHFS5]: This should be revised based upon the changes to (c) so I am not modifying them

(2) use results from those survey methods to help determine how data from increased surveys ~~can inform in real-time to achieve maximum export pumping rates can improve risk assessment for delta smelt entrainment that may result from maximum rates of exports without risk of causing jeopardy.~~

(c) Periodic Review of Monitoring.—At least once every 5 years, the Director shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the delta, is providing sufficient data to inform operations; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— the United States Fish and Wildlife Service, in collaboration with other delta science partners, shall implement surveys specifically designed to understand delta smelt abundance and distribution.

(2) SAMPLING.— the sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to best understand delta smelt abundance, distribution, and movements throughout the Bay Delta during all seasons; and

(C) will use the best survey methods, including sampling gear.

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.— Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December through June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether the early warning surveys conducted at the most appropriate locations pursuant to this section or other risk factors indicate that a significant increase in the entrainment of Delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show environmental conditions, results from early warning surveys, turbidity modeling, particle tracking, or any and all other relevant scientific or commercial information indicate under prevailing conditions that OMR flow more restrictive than -5000 cfs is needed to avoid a significant probability of substantially increased take of delta smelt; and

(3) document—

(A) the basis for the determination of the Secretary to require raised or lowered OMR flow level within the range established by the smelt biological opinion or any successor biological opinion, including an explanation of the data examined and the connection between the data and the choice made; and

(B) a showing, made in a manner consistent with the definition of “effects of the action” in 50 C.F.R. Part 402.02 and the definitions in this Act, that the limitation of OMR flow to levels less negative than -5000 cubic feet per second in the short-term is necessary to avoid jeopardy after considering other alternatives, if any, that may have a lesser water supply impact.

(f) Level of Detail Required for Analysis.—In documenting the determinations under subsection (e), the Secretary shall fully satisfy the requirements of paragraphs (1) and (2) of subsection (e) but is not required to provide a greater level of supporting detail for the analysis

Commented [BHFS6]: This should be revised based upon the changes to (c) so I am not modifying them.

Commented [BHFS7]: These standards were based on the outcome in (b), so when those changes are made this language should be modified.

Commented [BHFS8]: The language submitted was targeted real-time fish monitoring in Old River in the vicinity of Bacon Island

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than feasible to provide within the short time frame permitted for timely decision making in response to changing conditions in the Delta.

From: Watts, John (Feinstein)
Sent: Friday, September 5, 2014 11:10 AM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: FW: salmon adaptive management
Attachments: 2009 Salmon Biop quotes 09-04-14.docx

fyi

From: Burman, Brenda W [mailto:BBurman@mwdh2o.com]
Sent: Thursday, September 04, 2014 7:47 PM
To: Watts, John (Feinstein)
Cc: Bradley Cavallo
Subject: salmon adaptive management

John, here are some quotes from the salmon biop on adaptive management

This communication, together with any attachments or embedded links, is for the sole use of the intended recipient(s) and may contain information that is confidential or legally protected. If you are not the intended recipient, you are hereby notified that any review, disclosure, copying, dissemination, distribution or use of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately by return e-mail message and delete the original and all copies of the communication, along with any attachments or embedded links, from your system.

2009 Salmon Biop

Quotes:

11.2.1.1 Responsibilities and Procedures of Technical Teams (p581)

...

The Project Description for the proposed action (Appendix 1 to this Opinion), as revised by this RPA, establishes the responsibilities of each technical team. The RPA establishes the operations parameters that are necessary to avoid jeopardizing listed species or adversely modifying their critical habitat. Within those parameters, there is flexibility to adjust actions within a specified range based on current conditions. The allowed range of flexibility is prescribed in the “implementation procedures” portion of the RPA action. The technical teams and the WOMT will work within those implementation procedures to meet discretionary water contract obligations to the greatest extent consistent with survival and recovery of listed species. The teams also may recommend changes to the measures in this RPA, as detailed in the Research and Adaptive Management section of the RPA. Recommended changes outside the range of flexibility specified in the implementation procedures must receive written review and concurrence by NMFS and may trigger re-initiation.

11.2.1.2. Research and Adaptive Management (p583)

Not later than November 30 of every year, in conjunction with the CALFED Science Program or other Science Peer Review process, Reclamation and NMFS shall host a workshop to review the prior water years’ operations and to determine whether any measures prescribed in this RPA should be altered in light of information learned from prior years’ operations or research. After completion of the annual review, NMFS may initiate a process to amend specific measures in this RPA to reflect new information, provided that the amendment is consistent with the Opinion’s underlying analysis and conclusions and does not limit the effectiveness of the RPA in avoiding jeopardy to listed species or adverse modification of critical habitat. NMFS will ask the appropriate informational and technical teams to assess the need for a particular amendment and make recommendations to NMFS, according to the group processes for decision-making set forth in this RPA in action 11.2.1.1 above.

11.2.2 Actions Listed by Division (p587)

...

Action IV.2.2 Six-Year Acoustic Tag Experiment (p645)

...

Implementation Procedures

...

3) Annual reviews of the study results shall be conducted by the DOSS group. At the end of the 6-year period, a status review of Action IV.2.1 shall be prepared by the DOSS group. The status review shall be used to assess the success of Action IV.2.1 in increasing survival through the Delta for San Joaquin River basin salmonids, but in particular, steelhead. Based on the findings of the status review, the DOSS group will make recommendations to NMFS, Reclamation, CDFG, DWR, and USFWS on future actions to be undertaken in the San Joaquin River basin as part of an adaptive management approach to the basin's salmonid stocks.

4) **Complementary studies to achieve performance goals:** At its discretion, Reclamation and DWR also may develop and propose complementary studies to examine alternative actions that would accomplish the targeted survival performance goals. A primary effort of these studies will be to establish an appropriate survival goal for out-migrating steelhead smolts from Vernalis to Chipps Island in all water year types. **Reclamation and DWR may propose studies which test actions that incorporate non-flow or non-export related actions.** The studies shall contain specific actions within the authority and discretion of Reclamation and/or DWR, an evaluation of the projected benefits of each action with respect to increasing survival to the performance goal, evidence used to support this evaluation including literature citations, particle tracking modeling and other predictive tools, to demonstrate that the survival will be achieved, and a demonstration that the actions are reasonably certain to occur within the term of the study period. Any complementary study proposal shall be peer reviewed by the Calfed Science Program (or other comparable science group) and by the DOSS workgroup prior to being submitted to NMFS.

11.3.6 Economic and Technological Feasibility of the RPA (p718)

...

Examples of Feasibility Concerns in RPA Actions

...

The RPA includes collaborative research to enhance scientific understanding of the species and ecosystem, and to adapt actions to new scientific knowledge. This adaptive structure is important, given the long-term nature of the consultation and the scientific uncertainty inherent in a highly variable system. Monitoring and adaptive management are both built into many of the individual actions and are the subject of an annual program review. This annual program review will provide for additional opportunities to address any unforeseen concerns about RPA feasibility that may arise.

From: Burman,Brenda W
Sent: Friday, September 5, 2014 4:12 PM
To: Bernhardt, David L.
CC: Thomas W. Birmingham (tbirmingham@westlandswater.org); Patterson,Roger K
Subject: Re: Revised Text for Passback and comparison to language provided earlier this wee

Hi. Thanks for putting together David. Only one suggested change. In 4(B) on last page, let's take out the reference to the particular CFR. The service took it out of their draft and I think it doesn't help us. Can we say "consistent with implementing regulations"?

Sent from my iPhone

On Sep 5, 2014, at 3:51 PM, "Bernhardt, David L." <DBernhardt@BHFS.com> wrote:

Brenda and Tom: I have incorporated and merged Brenda's material with the earlier redline I sent around. I am including a redline here, which is a redline of the current draft compared to the language we were provided earlier in the week. I have also included a clean version. There are a few formatting modifications that I could not change in the clean version. Let me know, if we can forwarding these documents once you have looked at them. I am going to do another cross check myself.

David

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<RedlinetoADMINISTRATIONDRAFT (11548218-1).DOCX>

<FinalPassbackResponse (11548212-1).DOCX>

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From: Tom Birmingham
Sent: Friday, September 5, 2014 5:19 PM
To: 'Bernhardt, David L.'; 'Brenda Burman'
Subject: RE: Revised Text for Passback and comparison to language provided earlier this wee

David,

This looks good. Please forward the document to John.

Tom

From: Bernhardt, David L. [mailto:DBernhardt@BHFS.com]
Sent: Friday, September 05, 2014 3:51 PM
To: Brenda Burman (bburman@mwdh2o.com); Thomas W. Birmingham (tbirmingham@westlandswater.org)
Subject: Revised Text for Passback and comparison to language provided earlier this wee

Brenda and Tom: I have incorporated and merged Brenda's material with the earlier redline I sent around. I am including a redline here, which is a redline of the current draft compared to the language we were provided earlier in the week. I have also included a clean version. There are a few formatting modifications that I could not change in the clean version. Let me know, if we can forwarding these documents once you have looked at them. I am going to do another cross check myself.

David

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From: Watts, John (Feinstein)
Sent: Friday, September 5, 2014 6:11 PM
To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'DBernhardt@BHFS.com'; 'BBurman@mwdh2o.com'
CC: Yeung, Felix (Feinstein)
Subject: Fw: Updated Technical assistance
Attachments: Feinstein Drought title II Text WWS 9 5.14.docx

Confidential, please do not share with anyone.

From: will.stelle@noaa.gov [mailto:will.stelle@noaa.gov]
Sent: Friday, September 05, 2014 06:10 PM Eastern Standard Time
To: Watts, John (Feinstein); Albritton, Jason (EPW); Esquivel, Joaquin (Boxer); Yeung, Felix (Feinstein)
Cc: Bauserman, Trent <Trenton_D_Bauserman@ceq.eop.gov>; John Bezdek <john_bezdek@ios.doi.gov>; Karen Hyun - NOAA Federal <karen.hyun@noaa.gov>
Subject: Updated Technical assistance

John, Félix, Jason and Joaquin:

Attached are some refinements to several of the sections in title II of the 8.23.2014 draft text you provided us. I send these along with several important caveats.

First, these edits are in the nature of technical assistance only and do not represent an Administration position or Administration policy.

Second, these provisions are undergoing review by the Bureau and by the US FWS, who very much need to look closely at them because they will be all or partially responsible for their implementation. Hence, please understand that we may come back with changes to this text soon once they've had a fair chance to review it.

Third, I am sending this along even while the other agencies are reviewing it to give you as much lead time to see where we are trying to head, even as we complete work on title III technical suggestions. We may need to make adjustments in this text once that work matures.

Finally, I strongly encourage you to check with DWR and DFW once you are narrowing in on your preferred text. These systems are jointly operated, and both the operations and regulatory requirements under federal and state law are deeply intertwined. You should give the state a chance to review your final proposals to ascertain if there are any unintended consequences.

Yours,

WS

William Stelle Jr.
Regional Administrator
West Coast Region
NOAA Fisheries
206-526-6150

From: [John Watts](#)
Sent: Friday, September 5, 2014 11:39 AM
To: Will.Stelle@noaa.gov

Will,

Hope you made it back to Seattle smoothly. I just want to check in on the status of revised language working from our text on title II (salmon), which I understood you were seeking to send to us today, and a follow-up call on title II, which we were aiming to schedule today or over the weekend (after 2 pm eastern time tomorrow, or any time on Sunday).

Thanks. I understand you are feeding Bezdek language on Title III (drought relief/operational flexibility), and we are hoping to see that language soon as well.

Best,

John

TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 201. DEFINITIONS.

In this title:

- (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the Assistant Administrator of NOAA Fisheries.
- (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin steelhead, natural origin genetic spring run Chinook, and genetic winter run salmon smolts.
- (3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the ~~Regional Director of the~~ U.S. Fish and Wildlife Service, the ~~Director of the~~ California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test ~~out~~ the efficacy of an experimental trap and haul program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed, as further described below.

(1) ~~Commencing immediately in the fourth quarter of 2014~~ Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Administrator shall provide an opportunity for public review ~~and comment on~~ the pilot program and also seek an independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations as may be required for its prompt implementation and evaluation by the Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the

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efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to the Senate EPW and the House Committee on Natural Resources their progress in implementing this section, and at the end of six years shall formulate recommendations as to the appropriate future role of such a program in the conservation of listed salmonids in the San Joaquin watershed.

(b) Enhanced Steelhead Study [Recommend further discussion in ripeness per 9.2.2014 discussion.}

(c) Experimental Variability.— [Recommend delete.]

(b) PIT tag feasibility study -

(1) IN GENERAL.—The National Marine Fisheries Service, in collaboration with other delta science partners, shall implement a PIT tag feasibility study designed to aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

(c) Increased Monitoring to Inform Real-time Operations.—Starting in 2015, and on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Assistant Administrator shall—

(1) use the best survey methods at the most appropriate locations to detect migration and rearing of each species covered in the 2009 biological opinion; and

(2) use results from those survey methods to help calibrate real-time modeling tools, including the enhanced particle tracking model, and inform real-time operations consistent with the 2009 biological opinion or any successor opinion, including adaptive management provisions .

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. The reasonable and prudent alternatives described in the 2009 salmonid

biological opinion or any successor opinion allow for and anticipate adjustments in operational criteria to reflect the best scientific and commercial data currently available, and authorizes experimental efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described herein.

- 1) —Examine and identify adjustments to the timing, triggers or other operational details in the implementation of restrictions on pumping operations in RPA IV.2.1 pertaining to negative OMR flows at or below – 5000 and recommend to the Commissioner said adjustments either experimentally or as part of the annual operating plan in the exercise of the adaptive management provisions of the 2009 BiOps or succeeding opinions;

Commented [WS1]: Check citation to RPA

- 1)
- 2) Examine and recommend adjustments in the timing, triggers or other operational details in the implementation of pumping restrictions in RPA IV.2.3 pertaining to the inflow to exports requirements either experimentally or part of the annual operating plan.
- 3) In making these recommendations, the Assistant Administrator shall evaluate and describe the relative survival benefits of the recommendations as compared to a range of alternative measures that may offer equivalent or improve benefits with reduced negative effects on water supplies, including:
 - a) Trap and haul programs;
 - b) Habitat improvements;
 - c) Predation controls;
 - d) Collections and release programs at Clifton Court; and
 - e) Such other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.
- 4) The Administrator shall make these estimates and determinations quantitatively where possible, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

(c) Scientifically Supported Implementation of Delta Cross Channel and Old and Middle River Flow Requirements.—

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the salmonid biological opinion.

(2) REQUIREMENTS.—Beginning January 1, 2016, the Assistant Administrator shall recommend any adjustments to DCC operations and Old and Middle River flows to the Independent Annual Review panel, consistent with the adaptive management provisions of the salmonid biological opinion and as may be warranted based upon the best available science.

(A) In making recommendations, the Assistant Administrator shall—

(i) consider the relevant provisions in the 2009 biological opinion or any successor biological opinion;

(ii) consider new information available through new studies; and

(C) document any significant facts, including triggers, for real-time conditions relevant to the determinations of the Assistant Administrator of rates which reverse OMR flow will be managed.

(B) Following independent review, the Assistant Administrator shall make adjustments to operations as may be warranted, utilizing the adaptive management provisions. In making such adjustments, the Assistant Administrator shall articulate the basis for the adjustments, including an explanation of the information examined and the connection between the information and the choice made.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE

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SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE DELTA AND ITS TRIBUTARIES, INCLUDING THE STANISLAUS RIVER

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River. The pilot program shall--

(1) be scientifically based;

(2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;

(3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;

(4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;

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(5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research and species enhancement permits needed to begin the pilot program; and

(6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct-

(1) IN GENERAL- By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION- The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding-

(1) ANNUAL FUNDING- The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

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(2) ACCOUNTING- On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation-

(1) IN GENERAL- On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT- On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that--

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process-

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews – To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions- For the purposes of this section:

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(1) COMMISSIONER- The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS- The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM- The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset- The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California's water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly

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cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

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(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section _____, including known hotspots of predator aggregation or activity, such as:

- (i) Clifton Court Forebay,
- (ii) Central Valley Project intakes,
- (iii) Head of Old River,
- (iv) Georgiana Slough,
- (v) Old and Middle Rivers,
- (vi) Franks Tract,
- (vii) Paintersville Bridge,
- (viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,
- (ix) Human-made submerged structures, and
- (x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the

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Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

[Note: Evaluate Status of Mark/Selective Fisheries
Recommendations from California Hatchery Scientific Review
Group Report before proceeding further.]

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

- (1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and
- (2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

From: Watts, John (Feinstein)

Sent: Friday, September 5, 2014 7:21 PM

To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'DBernhardt@BHFS.com'; 'BBurman@mwdh2o.com'

CC: Yeung, Felix (Feinstein)

Subject: Call tomorrow to discuss revised salmon language?

Hi all. Can we do a call tomorrow to discuss the Administration's latest response on the salmon title, which I forwarded to you an hour ago?

I could do a brief call at 815 am pacific time.

Otherwise I could do a call between 2 and 3 pm pacific time, or possibly later if that works better.

I could also talk pretty much any time on Sunday.

Best,

John

-----Original Message-----

To: Tom Birmingham

To: Roger Patterson

To: david bernhardt

To: brenda burman

Cc: felix yeung

Subject: Fw: Updated Technical assistance

Sent: Sep 5, 2014 9:10 PM

Confidential, please do not share with anyone.

-----Original Message-----

From: will stelle

To: John Watts

To: Albritton, Jason (EPW)

To: joaquin esquivel

To: felix yeung

Cc: trent bauserman

Cc: John Bezdek

Cc: Karen Hyun - NOAA Federal

Subject: Updated Technical assistance

Sent: Sep 5, 2014 6:10 PM

John, Félix, Jason and Joaquin:

Attached are some refinements to several of the sections in title II of the 8.23.2014 draft text you provided us. I send these along with several important caveats.

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Yours,

WS

William Stelle Jr.
Regional Administrator
West Coast Region
NOAA Fisheries
206-526-6150

From: John Watts
Sent: Friday, September 5, 2014 11:39 AM
To: Will.Stelle@noaa.gov
Will,

Hope you made it back to Seattle smoothly. I just want to check in on the status of revised language working from our text on title II (salmon), which I understood you were seeking to send to us today, and a follow-up call on title II, which we were aiming to schedule today or over the weekend (after 2 pm eastern time tomorrow, or any time on Sunday).

Thanks. I understand you are feeding Bezdek language on Title III (drought relief/operational flexibility), and we are hoping to see that language soon as well.

Best,

John

From: Patterson,Roger K

Sent: Friday, September 5, 2014 7:22 PM

To: Watts, John (Feinstein)

CC: tbirmingham@westlandswater.org; DBernhardt@BHFS.com; Burman,Brenda W; Yeung, Felix (Feinstein)

Subject: Re: Call tomorrow to discuss revised salmon language?

Sunday morning would work best for me.

> On Sep 5, 2014, at 7:21 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

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> Hi all. Can we do a call tomorrow to discuss the Administration's latest response on the salmon title, which I forwarded to you an hour ago?

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> I could do a brief call at 815 am pacific time.

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> To: Tom Birmingham

> To: Roger Patterson

> To: david bernhardt

> To: brenda burman

> Cc: felix yeung

> Subject: Fw: Updated Technical assistance

> Sent: Sep 5, 2014 9:10 PM

>

> Confidential, please do not share with anyone.

>

> -----Original Message-----

> From: will stelle

> To: John Watts

> To: Albritton, Jason (EPW)

> To: joaquin esquivel

> To: felix yeung

> Cc: trent bauserman

> Cc: John Bezdek

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From: Tom Birmingham
Sent: Friday, September 5, 2014 9:41 PM
To: 'Patterson,Roger K'; 'Watts, John (Feinstein)'
CC: DBernhardt@BHFS.com; 'Burman,Brenda W'; 'Yeung, Felix (Feinstein)'
Subject: RE: Call tomorrow to discuss revised salmon language?

I will be available anytime.

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From: Yeung, Felix (Feinstein)
Sent: Saturday, September 6, 2014 6:03 AM
To: Tom Birmingham; 'Patterson,Roger K'; Watts, John (Feinstein)
CC: DBernhardt@BHFS.com; 'Burman,Brenda W'
Subject: RE: Call tomorrow to discuss revised salmon language?

Sunday also works best for me.

Shall we say 1:00pm Eastern / 10:00am Pacific on Sunday? Regardless of time, the following dial-in will work:

(202) [REDACTED] or (855) [REDACTED]

Passcode: [REDACTED]

F

Felix S. Yeung, Esq.
Legislative Assistant
Office of Senator Dianne Feinstein
202.224.9646

-----Original Message-----

From: Tom Birmingham [<mailto:tbirmingham@westlandswater.org>]
Sent: Saturday, September 06, 2014 12:41 AM
To: 'Patterson,Roger K'; Watts, John (Feinstein)
Cc: DBernhardt@BHFS.com; 'Burman,Brenda W'; Yeung, Felix (Feinstein)
Subject: RE: Call tomorrow to discuss revised salmon language?

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Sent: Saturday, September 6, 2014 6:12 AM

To: Yeung, Felix (Feinstein)

CC: Patterson,Roger K; Watts, John (Feinstein); DBernhardt@BHFS.com; Burman,Brenda W

Subject: Re: Call tomorrow to discuss revised salmon language?

Sunday at 10:00 am pacific time works for me.

Sent from my iPhone

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I can do that.

We can use 213-217-7888. 7781#

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>>> On Sep 5, 2014, at 7:21 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:
>>>
>>> Hi all. Can we do a call tomorrow to discuss the Administration's latest response on the salmon title, which I forwarded to you an hour ago?
>>>
>>> I could do a brief call at 815 am pacific time.
>>>
>>> Otherwise I could do a call between 2 and 3 pm pacific time, or possibly later if that works better.
>>>
>>> I could also talk pretty much any time on Sunday.
>>>
>>> Best,
>>>
>>> John
>>> -----Original Message-----
>>> To: Tom Birmingham
>>> To: Roger Patterson
>>> To: david bernhardt
>>> To: brenda burman
>>> Cc: felix yeung
>>> Subject: Fw: Updated Technical assistance
>>> Sent: Sep 5, 2014 9:10 PM
>>>
>>> Confidential, please do not share with anyone.
>>>
>>> -----Original Message-----
>>> From: will stelle
>>> To: John Watts
>>> To: Albritton, Jason (EPW)
>>> To: joaquin esquivel
>>> To: felix yeung
>>> Cc: trent bauserman
>>> Cc: John Bezdek
>>> Cc: Karen Hyun - NOAA Federal
>>> Subject: Updated Technical assistance
>>> Sent: Sep 5, 2014 6:10 PM
>>>
>>> John, Félix, Jason and Joaquin:
>>> Attached are some refinements to several of the sections in title II of the 8.23.2014 draft text you provided us. I send these along with several important caveats.
>>> First, these edits are in the nature of technical assistance only and do not represent an Administration position or Administration policy.
>>> Second, these provisions are undergoing review by the Bureau and by the US FWS, who very much need to look closely at them because they will be all or partially responsible for their implementation. Hence, please understand that we may come back with changes to this text soon once they've had a fair chance to review it.
>>> Third, I am sending this along even while the other agencies are reviewing it to give you as much lead time to see where we are trying to head, even as we complete work on title III technical suggestions. We may need to make adjustments in this text once that work matures.
>>> Finally, I strongly encourage you to check with DWR and DFW once you are narrowing in on your preferred text. These systems are jointly operated, and both the operations and regulatory requirements under federal and state law are deeply intertwined. You should give the state a chance to review your final proposals to ascertain if there are any unintended consequences.
>>> Yours,
>>> WS
>>>

>>>> William Stelle Jr.
>>>> Regional Administrator
>>>> West Coast Region
>>>> NOAA Fisheries
>>>> 206-526-6150

>>>>
>>>> From: John Watts
>>>> Sent: Friday, September 5, 2014 11:39 AM
>>>> To: Will.Stelle@noaa.gov
>>>> Will,

>>>>
>>>> Hope you made it back to Seattle smoothly. I just want to check in on the status of revised language working from our text on title II (salmon), which I understood you were seeking to send to us today, and a follow-up call on title II, which we were aiming to schedule today or over the weekend (after 2 pm eastern time tomorrow, or any time on Sunday).

>>>>
>>>> Thanks. I understand you are feeding Bezdek language on Title III (drought relief/operational flexibility), and we are hoping to see that language soon as well.

>>>>
>>>> Best,
>>>>
>>>> John

>>
>> _____
>>

>> This communication, together with any attachments or embedded links, is for the sole use of the intended recipient(s) and may contain information that is confidential or legally protected. If you are not the intended recipient, you are hereby notified that any review, disclosure, copying, dissemination, distribution or use of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately by return e-mail message and delete the original and all copies of the communication, along with any attachments or embedded links, from your system.

>>

From: Watts, John (Feinstein)
Sent: Saturday, September 6, 2014 6:29 AM
To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'
CC: Yeung, Felix (Feinstein)
Subject: Fw: Confidential RE: Conference Call Friday at 8am pacific/11 am edt
Attachments: DOI Technical Comments.docx

Confidentially attached are the Administration's revised edits to the drought relief/operational flexibility title. We can discuss this on tomorrow's call as well.

From: Bezdek, John [mailto:john_bezdek@ios.doi.gov]
Sent: Saturday, September 06, 2014 08:20 AM Eastern Standard Time
To: Watts, John (Feinstein)
Cc: Gareth Rees <gareth_rees@ios.doi.gov>; Letty Belin <letty_belin@ios.doi.gov>; Jennifer Gimbel <Jgimbel@usbr.gov>; Ren Lohofener <Ren_Lohofener@fws.gov>; William Stelle <Will.Stelle@noaa.gov>; Jason R Phillips <JPhillips@usbr.gov>; David Murillo <DMurillo@usbr.gov>; Dan Castleberry <dan_castleberry@fws.gov>; Mathew Maucieri <mmaucieri@usbr.gov>; Albritton, Jason (EPW); Esquivel, Joaquin (Boxer); Yeung, Felix (Feinstein)
Subject: Re: Confidential RE: Conference Call Friday at 8am pacific/11 am edt

John:

Attached is a file that I believe captures the outstanding technical edits we agreed to get back to you on. I will go back later today to confirm this is everything. In addition to the attached, we believe the Colorado River Studies should be contingent on availability of funding. We have also determined after additional review, we have no technical amendments to section 310 and the language on the CVPIA which we originally were concerned with.

Please let me know if you have any comments.

j

On Thu, Sep 4, 2014 at 3:50 PM, Watts, John (Feinstein) <John.Watts@feinstein.senate.gov> wrote:
John,

Thanks for asking how to structure the conversation which you are trying to move up to this afternoon. I would like to organize the conversation around the language we sent you and what if any concerns you have about the key provisions of that language. I have already highlighted for Will many of the provisions that are critical or very important for us and were not included in your response language on the drought relief/operational flexibility title, including:

- 1) The temporary operational flexibility provision (section 309), which we revised to make it a goal rather than a mandate to operate at higher pumping levels, and to allow the Secretaries the ability to maintain any fishery protections they believe are necessary to avoid jeopardy to the species. We believe it is critical to have this provision in any bill, because without it many permanent tree growers are at severe risk of ruin from another dry or critically dry year.
- 2) The provision on operating a 1:1 i/e ratio for transfers during droughts (section 303(b)(3)). We have modified this provision, which was part of the bill that passed the Senate unanimously, to make it clear that any proposed transfers with a 1:1 i/e ratio have to undergo environmental review to make sure they do not, among other things, have unacceptable impacts on listed species. This an example of a requirement in the unanimously passed Senate bill becoming merely something the agencies are to consider doing in the language

you provided, which doesn't work for us.

3) The provision (paragraph (4) in section 308) directing that OMR flow be managed consistent with the ESA, the biological opinions, and all other applicable laws and regulations, but also to minimize water supply reductions for the CVP and the SWP. Once you are complying with the ESA and all other laws and regulations, what would the concern be with also trying to minimize water supply losses? This provision was part of the unanimously passed Senate bill, and is included in the regular operations part of the drought relief/operational flexibility title.

4) Paragraph 2 of section 308, which could not only benefit California but is extremely important for other Western Senators and addresses a study of salt cedar biocontrol efforts (also part of the unanimously passed Senate bill).

5) Language requiring that drought relief projects under this title be carried out consistent with the emergency alternative arrangement provisions of the CEQ regulations (section 306). It was puzzling to us that this language was dropped, since CEQ sounded agreeable to this language on our call to discuss it (also part of the unanimously passed Senate bill).

Other language of importance in our draft includes:

6) Language requiring an accelerated project decision and elevation process, only for projects that are important enough that the State of California requires use of this process (section 303(c)). (also part of the unanimously passed Senate bill).

7) Language requiring deadlines for permitting process for certain projects involving temporary barriers and gates (section 303(b)(1)), water transfers (section 303(b)(2)), and State Revolving Fund waivers (section 307). We understand you believe some of these deadlines may be too short, but we ask you to work with us on them. (also part of the unanimously passed Senate bill).

8) Language directing WaterSMART funding to be prioritized for certain drought-related projects (section 303(b)(4)). (also part of the unanimously passed Senate bill).

9) Language regarding the operation of the Delta Cross Channel Gates (Sec. 304). (also part of the unanimously passed Senate bill).

10) Language directing implementation of off-site environmental mitigation projects (which actually was proposed by Will). (also part of the unanimously passed Senate bill).

11) Language expediting water transfers (Sec. 310).

Some of the other provisions in our language are picked up in the drought operations plan that you proposed. After going over the key missing provisions from our language, we would like to discuss this drought operations plan and the benefits that you have mentioned it would provide. We are concerned that the drought operations plan language is almost entirely wholly discretionary. We would like to explore whether some of its provisions can be made mandatory.

Please keep this email confidential.

Thanks,

John

-----Original Message-----

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]

Sent: Wednesday, September 03, 2014 3:57 PM

To: Gareth Rees

Cc: Letty Belin; Jennifer Gimbel; Ren Lohofener; William Stelle; Jason R Phillips; David Murillo; Dan Castleberry; Mathew Maucieri; Watts, John (Feinstein)

Subject: Conference Call Friday at 8am pacific/11 am edt

Gareth:

Would you please set up a conference call for the folks on this email for Friday at 11am edt/8am pdt.

Thanks

Sent from my iPad

SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT.

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(a) Water Supplies.—

(1) IN GENERAL.—In response to a declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, the Secretaries shall provide the maximum quantity of water supplies practicable to Central Valley Project agricultural, municipal and industrial, and refuge service and repayment contractors, State Water Project contractors, and any other locality or municipality in the State, by approving, consistent with applicable laws (including regulations), projects and operations to provide additional water supplies as quickly as practicable based on available information to address the emergency conditions.

(2) APPLICATION.—Paragraph (1) applies to projects or operations involving the Klamath Project if the projects or operations would benefit Federal water contractors in the State.

(b) Administration.—In carrying out subsection (a), the Secretaries shall, consistent with applicable laws (including regulations)—

(1) issue all necessary permit decisions under the authority of the Secretaries not later than 30 days after the date on which the Secretaries receive a completed application from the State to place and use temporary barriers or operable gates in Delta channels to improve water quantity and quality for the State Water Project and the Central Valley Project south of Delta water contractors and other water users, on the condition that the barriers or operable gates—

(A) provide benefits for species protection and in-Delta water user water quality; and

(B) are designed so that formal consultations under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536) are not necessary;

(2) require the Director of the United States Fish and Wildlife Service and the Commissioner of Reclamation—

(A) to complete, not later than 30 days after the date on which the Director or the Commissioner receives a **complete written request for** water transfer ~~request~~ associated with voluntarily fallowing nonpermanent crops in the State, all requirements under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) necessary to make final permit decisions on the request; and

(B) to grant any water transfer request described in subparagraph (A) to maximize the quantity of water supplies available for nonhabitat uses, on the condition that the fallowing and associated water transfer are in compliance with applicable Federal laws (including regulations);

(3) adopt a 1:1 inflow to export ratio for the increment of increased flow of the San Joaquin River, as measured as a 3-day running average at Vernalis during the period beginning on April 1, and ending on May 31, resulting from voluntary transfers and

exchanges of water supplies, on the condition that a proposed transfer or exchange under this paragraph may only proceed if the Secretary of the Interior determines that the environmental effects of the proposed transfer or exchange are consistent with effects permissible under applicable law (including regulations), and Delta conditions are suitable to allow movement of the transfer water through the Delta consistent with Reclamation's permitted rights; and

(4) (4) Provide additional priority for eligible WaterSMART projects that address drought conditions including:

(A) emergency drinking and municipal water supplies to localities in a quantity necessary to meet minimum public health and safety needs;

(B) prevent the loss of permanent crops;

(C) minimize economic losses resulting from drought conditions; or

(D) innovative water conservation tools and technology for agriculture and urban water use that can have immediate water supply benefits.

~~make any WaterSMART grant funding allocated to the State available on a priority and expedited basis for projects in the State that —~~

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(c) Accelerated Project Decision and Elevation.—

(1) IN GENERAL.—On request by the State, the heads of Federal agencies shall use the expedited procedures under this subsection to make final decisions relating to a Federal project or operation to provide additional water supplies or address emergency drought conditions pursuant to subsections (a) and (b).

(2) REQUEST FOR RESOLUTION.—

(A) IN GENERAL.—On request by the State, the head of a Federal agency described in [paragraph (1)], or the head of another Federal agency responsible for carrying out a review of a project, as applicable, the Secretary of the Interior shall convene a final project decision meeting with the heads of all relevant Federal agencies to decide whether to approve a project to provide emergency water supplies.

(B) MEETING.—The Secretary of the Interior shall convene a meeting requested under subparagraph (A) not later than 7 days after the date on which the meeting request is received.

(3) NOTIFICATION.—On receipt of a request for a meeting under paragraph (2), the Secretary of the Interior shall notify the heads of all relevant Federal agencies of the request, including information on the project to be reviewed and the date of the meeting.

(4) DECISION.—Not later than 10 days after the date on which a meeting is requested under paragraph (2), the head of the relevant Federal agency shall issue a final decision on the project.

(5) MEETING CONVENED BY SECRETARY.—The Secretary of the Interior may convene a

final project decision meeting under this subsection at any time, at the discretion of the Secretary, regardless of whether a meeting is requested under paragraph (2).

(d) Application.—To the extent that a Federal agency, other than the agencies headed by the Secretaries, has a role in approving projects described in subsections (a) and (b), this section shall apply to those Federal agencies.

(e) Limitation.—Nothing in this section authorizes the heads of applicable Federal agencies to approve projects—

- (1) that would otherwise require congressional authorization; or
- (2) without following procedures required by applicable law.

Sec. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(b) Goal. To the maximum extent possible consistent with avoiding jeopardy under the Endangered Species Act pursuant to subsection (d) and in accordance with other state and federal laws (including regulations and the 2008 Fish and Wildlife Service Biological Opinion and the 2009 NOAA Fisheries Biological Opinion) as described in subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at -7500 cubic feet per second for 21 cumulative days of high outflow after October 1, 2014, as described in subsection (c).

(d) Avoiding jeopardy. In carrying out this section, to prevent the need to reinstate consultation, the Secretaries will continue to implement the requirements under the biological opinions during any period of high outflow if they:

(1) Demonstrate, including an explanations of the data examined and the connection between those data and the choice made, all possible deference for maintaining the maximum exports while complying with the biological opinions; and

(2) Give great weight to allowing maximum water exports while complying with the biological opinions realizing the incidental take levels in the applicable biological opinions are maximum expected incidental take when the proposed action is operated in compliance with the Endangered Species Act and other state and federal laws .

Commented [WU1]: These edits are meant to provide minimum possible changes to the language while ensuring reinitiation of the biological opinions would not be triggered. Reclamation and the Services have to act within the parameters set by the 2008 and 2009 biological opinions.

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Commented [WU2]: I fully agree with Will Stelle's comments that avoiding jeopardy is not the right standard as jeopardy is determined, and corrected through Reasonable and Prudent Alternatives, by analyzing the proposed actions as a whole and not by assessing specific actions – such as OMR flows on a certain date – either in the proposed action or in the reasonable and prudent alternatives imposed to remove jeopardy to species. I have, however, left the jeopardy language in the spirit of trying to find compromise.

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Commented [WU3]: The original language puts Reclamation and the Services in the position of potentially violating the measures in the opinions required to prevent jeopardizing the species. Reinitiation of consultation would likely be a lengthy process as it would be the operations as a whole that would need to be assessed and the result of reinitiation could result in more restrictive requirements than currently exist.

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From: Watts, John (Feinstein)
Sent: Saturday, September 6, 2014 6:30 AM
To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'
CC: Yeung, Felix (Feinstein)
Subject: Fw: Confidential RE: Conference Call Friday at 8am pacific/11 am edt

See my question below about this language and Bezdek's response.

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]
Sent: Saturday, September 06, 2014 08:58 AM Eastern Standard Time
To: Watts, John (Feinstein)
Cc: Yeung, Felix (Feinstein)
Subject: Re: Confidential RE: Conference Call Friday at 8am pacific/11 am edt

I need to confirm but I think so.

On Sep 6, 2014, at 8:57 AM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

John, Thanks very much for sending this. I have one question to understand what you sent: by attaching just edited sections 303 and 309 (and mentioning that you are OK with section 310), does that mean you have no edits to the other sections of title III that we sent you on Friday August 22, other than making the salt cedar biocontrol studies in section 308 subject to the availability of funding, which you mention in your email?

Thanks again,

John

From: Bezdek, John [mailto:john_bezdek@ios.doi.gov]
Sent: Saturday, September 06, 2014 08:20 AM Eastern Standard Time
To: Watts, John (Feinstein)
Cc: Gareth Rees <gareth_rees@ios.doi.gov>; Letty Belin <letty_belin@ios.doi.gov>; Jennifer Gimbel <Jgimbel@usbr.gov>; Ren Lohofener <Ren_Lohofener@fws.gov>; William Stelle <Will.Stelle@noaa.gov>; Jason R Phillips <JPhillips@usbr.gov>; David Murillo <DMurillo@usbr.gov>; Dan Castleberry <dan_castleberry@fws.gov>; Mathew Maucieri <mmaucieri@usbr.gov>; Albritton, Jason (EPW); Esquivel, Joaquin (Boxer); Yeung, Felix (Feinstein)
Subject: Re: Confidential RE: Conference Call Friday at 8am pacific/11 am edt

John:

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Please let me know if you have any comments.

j

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4) Paragraph 2 of section 308, which could not only benefit California but is extremely important for other Western Senators and addresses a study of salt cedar biocontrol efforts (also part of the unanimously passed Senate bill).

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Some of the other provisions in our language are picked up in the drought operations plan that you proposed. After going over the key missing provisions from our language, we would like to discuss this drought operations plan and the benefits that you have mentioned it would provide. We are concerned that the drought operations plan language is almost entirely wholly discretionary. We would like to explore whether some of its provisions can be made mandatory.

Please keep this email confidential.

Thanks,

John

-----Original Message-----

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]

Sent: Wednesday, September 03, 2014 3:57 PM

To: Gareth Rees

Cc: Letty Belin; Jennifer Gimbel; Ren Lohofener; William Stelle; Jason R Phillips; David Murillo; Dan Castleberry; Mathew Maucieri; Watts, John (Feinstein)

Subject: Conference Call Friday at 8am pacific/11 am edt

Gareth:

Would you please set up a conference call for the folks on this email for Friday at 11am edt/8am pdt.

Thanks

Sent from my iPad

From: Watts, John (Feinstein)
Sent: Saturday, September 6, 2014 6:50 AM
To: 'DBernhardt@BHFS.com'
CC: 'tbirmingham@westlandswater.org'
Subject: Fw: Section 7 Atty Discussion

David, You are invited to join this discussion, as I mentioned yesterday.

John

----- Original Message -----

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]

Sent: Saturday, September 06, 2014 09:36 AM Eastern Standard Time

To: Watts, John (Feinstein); Yeung, Felix (Feinstein); Peg Romanik <PEG.ROMANIK@sol.doi.gov>; Kaylee Allen <Kaylee.Allen@sol.doi.gov>

Cc: Jennifer Gimbel <Jgimbel@usbr.gov>; Letty Belin <letty_belin@ios.doi.gov>; William Stelle <Will.Stelle@noaa.gov>

Subject: Section 7 Atty Discussion

All:

It looks like Monday at 12:30 est works for everybody. I'll send out a number on Monday morning.

Thanks

From: Watts, John (Feinstein)
Sent: Sunday, September 7, 2014 8:32 AM
To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'
CC: Yeung, Felix (Feinstein)
Subject: In preparation for today's 10 am Pacific call
Attachments: 2009 Salmon Biop quotes 09-04-14.docx

Hi all. On today's 10am Pacific call, I want to discuss (in order):

- 1) the revised salmon language Will sent,
- 2) the revised drought relief language Bezdek sent,
- 3) the redline of the Administration's smelt language that you sent me, and
- 4) the issue of jeopardy and the legal standard for operational decisions (this might be brief).

As a key part of these discussions, I want to talk about the adaptive management provisions of the salmon BiOp, since both the latest salmon language and the temporary operational flexibility language rely on these adaptive management provisions. I have forwarded an email from Brenda below that helpfully highlights some of the key provisions.

As I read what Brenda has sent, my overall impression is that the BiOp sets a number of highly vague limits on what can and cannot be done through adaptive management without reinitiating consultation. I am concerned that the overall effect of these multiple vague limits is that it is all up to NMFS' essentially unreviewable discretion -- if they don't want to do something, they can say it would be inconsistent with the terms of the BiOp. For example, they might cite the provision in the "Research and Adaptive Management" section of the BiOp requiring adaptive management proposals to be "consistent with the Opinion's underlying analysis and conclusions." It would be hard to argue the point because the standard is so unclear (What level of consistency is required? Does the adaptive management proposal have to be consistent with every detail of the analysis?).

I am curious how often the adaptive management provisions of the salmon BiOp have been used. I understand NMFS has been resistant to using them. I am also curious about your read and experience of them, and also any thoughts you have about the adaptive management provisions of the smelt BiOp.

Thanks, and I look forward to our 10 am Pacific call. I hope folks will have a good hour to 90 minutes or more available for discussion. I am also open to other agenda items besides those set forth above.

Best, John

From: Burman, Brenda W [mailto:BBurman@mwdh2o.com]
Sent: Thursday, September 04, 2014 07:46 PM Eastern Standard Time
To: Watts, John (Feinstein)
Cc: Bradley Cavallo <bradley.cavallo@gmail.com>
Subject: salmon adaptive management

John, here are some quotes from the salmon biop on adaptive management

2009 Salmon Biop

Quotes:

11.2.1.1 Responsibilities and Procedures of Technical Teams (p581)

...

The Project Description for the proposed action (Appendix 1 to this Opinion), as revised by this RPA, establishes the responsibilities of each technical team. The RPA establishes the operations parameters that are necessary to avoid jeopardizing listed species or adversely modifying their critical habitat. Within those parameters, there is flexibility to adjust actions within a specified range based on current conditions. The allowed range of flexibility is prescribed in the “implementation procedures” portion of the RPA action. The technical teams and the WOMT will work within those implementation procedures to meet discretionary water contract obligations to the greatest extent consistent with survival and recovery of listed species. The teams also may recommend changes to the measures in this RPA, as detailed in the Research and Adaptive Management section of the RPA. Recommended changes outside the range of flexibility specified in the implementation procedures must receive written review and concurrence by NMFS and may trigger re-initiation.

11.2.1.2. Research and Adaptive Management (p583)

Not later than November 30 of every year, in conjunction with the CALFED Science Program or other Science Peer Review process, Reclamation and NMFS shall host a workshop to review the prior water years’ operations and to determine whether any measures prescribed in this RPA should be altered in light of information learned from prior years’ operations or research. After completion of the annual review, NMFS may initiate a process to amend specific measures in this RPA to reflect new information, provided that the amendment is consistent with the Opinion’s underlying analysis and conclusions and does not limit the effectiveness of the RPA in avoiding jeopardy to listed species or adverse modification of critical habitat. NMFS will ask the appropriate informational and technical teams to assess the need for a particular amendment and make recommendations to NMFS, according to the group processes for decision-making set forth in this RPA in action 11.2.1.1 above.

11.2.2 Actions Listed by Division (p587)

...

Action IV.2.2 Six-Year Acoustic Tag Experiment (p645)

...

Implementation Procedures

...

3) Annual reviews of the study results shall be conducted by the DOSS group. At the end of the 6-year period, a status review of Action IV.2.1 shall be prepared by the DOSS group. The status review shall be used to assess the success of Action IV.2.1 in increasing survival through the Delta for San Joaquin River basin salmonids, but in particular, steelhead. Based on the findings of the status review, the DOSS group will make recommendations to NMFS, Reclamation, CDFG, DWR, and USFWS on future actions to be undertaken in the San Joaquin River basin as part of an adaptive management approach to the basin's salmonid stocks.

4) **Complementary studies to achieve performance goals:** At its discretion, Reclamation and DWR also may develop and propose complementary studies to examine alternative actions that would accomplish the targeted survival performance goals. A primary effort of these studies will be to establish an appropriate survival goal for out-migrating steelhead smolts from Vernalis to Chipps Island in all water year types. **Reclamation and DWR may propose studies which test actions that incorporate non-flow or non-export related actions.** The studies shall contain specific actions within the authority and discretion of Reclamation and/or DWR, an evaluation of the projected benefits of each action with respect to increasing survival to the performance goal, evidence used to support this evaluation including literature citations, particle tracking modeling and other predictive tools, to demonstrate that the survival will be achieved, and a demonstration that the actions are reasonably certain to occur within the term of the study period. Any complementary study proposal shall be peer reviewed by the Calfed Science Program (or other comparable science group) and by the DOSS workgroup prior to being submitted to NMFS.

11.3.6 Economic and Technological Feasibility of the RPA (p718)

...

Examples of Feasibility Concerns in RPA Actions

...

The RPA includes collaborative research to enhance scientific understanding of the species and ecosystem, and to adapt actions to new scientific knowledge. This adaptive structure is important, given the long-term nature of the consultation and the scientific uncertainty inherent in a highly variable system. Monitoring and adaptive management are both built into many of the individual actions and are the subject of an annual program review. This annual program review will provide for additional opportunities to address any unforeseen concerns about RPA feasibility that may arise.

From: Watts, John (Feinstein)

Sent: Sunday, September 7, 2014 1:24 PM

To: 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'

CC: 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'; Yeung, Felix (Feinstein)

Subject: Can you send us the biop provisions on who is responsible

For management of the projects under the biops, and to what degree NOAA and FWS are given that responsibility?

It would be good to have that information for our 630 pm pacific call.

From: Tom Birmingham

Sent: Sunday, September 7, 2014 1:37 PM

To: Watts, John (Feinstein)

CC: RPatterson@mwdh2o.com; BBurman@mwdh2o.com; DBernhardt@BHFS.com; Yeung, Felix (Feinstein)

Subject: Re: Can you send us the biop provisions on who is responsible

I will forward BiOps with the language.

Sent from my iPhone

> On Sep 7, 2014, at 1:23 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

>

> For management of the projects under the biops, and to what degree NOAA and FWS are given that responsibility?

>

> It would be good to have that information for our 630 pm pacific call.

From: Patterson,Roger K

Sent: Sunday, September 7, 2014 2:34 PM

To: John Watts; Tom Birmingham; Felix Yeung; Burman,Brenda W; Brenda Wren Burman; David L. 'Bernhardt

Subject: Fwd: Smelt BO RPAs

Attachments: Smelt BO RPAs.pages.zip; ATT00001.htm

Date: September 7, 2014 at 2:31:05 PM PDT

To: Patterson Roger <rpatterson@mwdh2o.com>

Subject: Smelt BO RPAs

See the highlighted areas that say the Service will make the decisions on OMR.

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From: Tom Birmingham

Sent: Sunday, September 7, 2014 4:10 PM

To: 'Watts, John (Feinstein)'; 'Yeung, Felix (Feinstein)'; 'Patterson,Roger K'; DBernhardt@BHFS.com; 'Burman,Brenda W'

Subject: Alternative Lanuage

Attachments: Alternative Management Language.docx; 2009SalmonBioOpinion.pdf; 2008+FWS+biological+opinion.pdf

Lady and Gentlemen,

Attached is some alternative language I drafted after our call this afternoon. I am also attaching the biological opinions.

If you would like to talk earlier than 6:30 Pacific time, please let me know.

Tom

From: Tom Birmingham

Sent: Sunday, September 7, 2014 6:47 PM

To: 'Watts, John (Feinstein)'; 'Yeung, Felix (Feinstein)'

CC: DBernhardt@BHFS.com; 'Patterson,Roger K'; 'Burman,Brenda W'

Subject: Process in BiOp

Process for Determining Specific Actions within Components 1 and 2

1. Within one day after the SWG recommends an action should be initiated, changed, suspended or terminated, the SWG shall provide to the Service a written recommendation and a biological justification. The SWG shall use the process described in Attachments A and B to provide a framework for their recommendations. The Service shall determine whether the proposed action should be implemented, modified, or terminated; and the OMR flow needed to achieve the protection. The Service shall present this information to the WOMT.
2. The WOMT shall either concur with the recommendation or provide a written alternative to the recommendation to the Service within one calendar day. The Service shall then make a final determination on the proposed action to be implemented, which shall be documented and posted on the Sacramento Fish and Wildlife Service's webpage.
3. Once the Service makes a final determination to initiate a new action, it shall be implemented within two calendar days by Reclamation and DWR, and shall remain in effect until the need for the action ends or the OMR flow is changed, as determined by the Service, consistent with the RPA and described within Attachment B. Data demonstrating the implementation of the action shall be provided by Reclamation to the Service on a weekly basis.
4. If the Service determines that an OMR flow change is required while an action is ongoing, Reclamation and DWR shall adjust operations to manage to the new OMR flow within two days of receipt of the Service's determination. This new OMR flow shall be used until it is adjusted or the action is changed or terminated based on new information, as described in the RPA and Attachment B.

From: Watts, John (Feinstein)

Sent: Monday, September 8, 2014 1:14 PM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Bernhardt, David L.; 'Burman,Brenda W'

CC: Yeung, Felix (Feinstein)

Subject: Two language options on the "jeopardy" issue for our 430 eastern time call

Attachments: jeopardy options 9-8-14.docx

I would like to share these options with the agency lawyers following up on our call with them today. I look forward to discussing the options with you.

Option 1 – Modify Existing Language to Make Clear How Jeopardy Analysis is Feasible

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December to June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island pursuant to this section indicates that a significant increase in the salvage of Delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(3) document—

~~(A) the basis for the determination of the Secretary to require raised or lowered OMR flow level within the range established by the smelt biological opinion or any successor biological opinion, including an explanation of the data examined and the connection between the data and the choice made; and~~

~~—(B) a showing, made in a manner consistent with the definition of “effects of the action” including the environmental baseline, defined in 50 C.F.R. Part 402.02 and the definitions in this Act, after informally conferring with the Director of the Fish and Wildlife Service, including an explanation of the data examined and the connection between the data and the choice made, that the any limitation of OMR flow to levels less negative than -5000 cubic feet per second in the short-term is necessary to avoid jeopardy after —~~

(A) considering other alternatives, if any, that may have a lesser water supply impact;

(B) considering the reasonable and prudent alternatives for other management actions besides those related to Old and Middle River flows as part of the environmental baseline, defined in 50 C.F.R. Part 402.02; and

(C) relying, if the Secretary so chooses, on previous jeopardy analyses or portions of such analyses made under this section applicable to decisions regarding the

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OMR flows under the same prevailing conditions, or to the extent they are relevant to the prevailing conditions.

Option 2: A Modified Version of Tom's Language on Making Reclamation Responsible for Day-to-Day Management Decisions

(c) Implementation of Old and Middle River Flow Requirements.—

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the smelt biological opinion or the salmonid biological opinion.

(2) REQUIREMENTS.—Notwithstanding any provision of the smelt biological opinion or the salmonid biological opinion, or any successor biological opinions, Reclamation, as the action agency, in coordination the California Department of Water Resources, shall make the final determination concerning management of negative flow in Old and Middle Rivers within the ranges established by the reasonable and prudent alternatives described in smelt biological opinion and the salmonid biological opinion, or any successor biological opinions. In making these determinations, Reclamation shall—

(A) consider the relevant provisions in the smelt biological opinion and the salmonid biological opinion, or any successor biological opinions; ~~and~~

(C) engage annually in informal consultation on Reclamation's decisions managing Old and Middle River flow under the biological opinions or any successor biological opinions —

(1) with the Fish and Wildlife Service on decisions related to the Delta smelt; and

(2) with NOAA Fisheries on decisions related to the listed salmonid species.-

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From: Watts, John (Feinstein)
Sent: Monday, September 8, 2014 6:05 PM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mw2dh.com) (rpatterson@mw2dh.com)
CC: Bernhardt, David L.; 'Burman,Brenda W'; Yeung, Felix (Feinstein); Duck, Jennifer (Feinstein)
Subject: Revised strategy on options for "jeopardy" issue
Attachments: jeopardy language 9-8-14.docx

After further consideration, our collective staff view is that we should present the agency lawyers with the attached proposal. We would give them Option 1 from what I sent you, and then say in a note at the outset that if they don't think this would work and they would prefer to see an alternative option instead, we can present them language on an alternative option giving Reclamation authority over day-to-day management decisions under the biological opinions. This way, if they say they actually want to see that alternative language, we can explain why we raised a proposal that changes which agency is responsible for day-to-day decisions under the biological opinions.

Please note that I have included some explanation at the top of the document about why this language is critical for our proposal, and why we think this language is appropriate and helpful for implementing meaningful incremental adjustments of the biological opinions in the face of new scientific information about both the existing RPAs and alternative management possibilities. Please let me know if you think this write-up is helpful, or if you have any edits to it.

If you want to talk this over further before we sent the language to the agencies, I would be happy to do so -- please let me know and what times tomorrow would work for this call.

If no further call is necessary, I will send this to the agencies as soon as possible. Thanks,

John

From: Watts, John (Feinstein)
Sent: Monday, September 08, 2014 4:14 PM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mw2dh.com) (rpatterson@mw2dh.com); Bernhardt, David L.; 'Burman,Brenda W'
Cc: Yeung, Felix (Feinstein)
Subject: Two language options on the "jeopardy" issue for our 430 eastern time call

I would like to share these options with the agency lawyers following up on our call with them today. I look forward to discussing the options with you.

Proposal to Modify Existing Language to Make Clear How Jeopardy Analysis is Feasible Without Revisiting Full Analysis Done for the Adoption of the Biological Opinions

As we discussed on yesterday's call, the core idea of our proposal is to establish a workable mechanism and legal framework for meaningful incremental changes in operations based on new scientific information, additional monitoring, and additional management options. Without a clear standard to evaluate agency decisions implementing the biological opinions, there is no agreed yardstick for determining whether such incremental changes in operations are achievable while avoiding jeopardy within the framework of the biological opinions.

Especially for biological opinions on projects as complicated and as important as the operation of the Central Valley and State Water Projects, we believe there should be a workable mechanism for implementing meaningful incremental changes in operations without triggering the extremely resource-intensive endeavor of a full reconsultation.

On yesterday's call, we heard the agencies raise concerns about the feasibility of a jeopardy analysis for particular operational decisions. We think we can establish parameters that would make it feasible to do what one agency attorney called a "mini-jeopardy analysis" on particular operational decisions. As set forth below,

- 1) The agencies would not have to revisit the jeopardy analysis for other management activities other than limiting OMR flow, because the RPAs for these other activities would become part of the environmental baseline.
- 2) The agencies could rely on previous jeopardy analyses or portions of such analyses made under this section applicable to decisions regarding the OMR flows under the same prevailing conditions, or to the extent they are relevant to the prevailing conditions.

If you have other suggestions for how to make these "mini-jeopardy analyses" work, we would be happy to consider them.

If you don't think there is any way this approach could work and you would prefer to see an alternative option with a different approach, we can share with you language that would make the Bureau of Reclamation Responsible for day-to-day management decisions based on the biological opinions as developed by the regulatory agencies, and subject to informal consultation with the regulatory agencies.

Redline of proposed changes to existing language:

Modify section 103(e) from the smelt title as follows (from the section entitled "Factoring increased real-time monitoring and updated science into delta smelt management"):

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December to June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island pursuant to this section indicates that a significant increase in the salvage of Delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(3) document—

(A) considering other alternatives, if any, that may have a lesser water supply impact;

(B) considering the reasonable and prudent alternatives for other management actions besides those related to Old and Middle River flows as part of the environmental baseline, defined in 50 C.F.R. Part 402.02 or any successor regulation; and

(C) relying, if the Secretary so chooses, on previous jeopardy analyses or portions of such analyses made under this section applicable to decisions regarding the OMR flows under the same prevailing conditions, or to the extent they are relevant to the prevailing conditions.

[Similar language would apply to the management of OMR flows under the salmon biological opinion]

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From: Watts, John (Feinstein)

Sent: Tuesday, September 9, 2014 7:11 AM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Bernhardt, David L.; 'Burman,Brenda W'

CC: Yeung, Felix (Feinstein)

Subject: I talked to Bezdek

There are several things to discuss. Can you talk either before 1 pm eastern time, or after 3:30 eastern time?

From: Watts, John (Feinstein)

Sent: Tuesday, September 9, 2014 1:24 PM

To: 'Tom Birmingham'; 'Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com)'; 'Bernhardt, David L.'; 'Burman,Brenda W'

CC: Yeung, Felix (Feinstein)

Subject: Can we talk later this afternoon?

I am free, and there are several items to discuss following my conversation with John Bezdek. What times work for you?

From: Watts, John (Feinstein)

Sent: Tuesday, September 09, 2014 10:11 AM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Bernhardt, David L.; 'Burman,Brenda W'

Cc: Yeung, Felix (Feinstein)

Subject: I talked to Bezdek

There are several things to discuss. Can you talk either before 1 pm eastern time, or after 3:30 eastern time?

From: Patterson,Roger K
Sent: Tuesday, September 9, 2014 1:26 PM
To: Watts, John (Feinstein); 'Tom Birmingham'; 'Bernhardt, David L.'; Burman,Brenda W
CC: Yeung, Felix (Feinstein)
Subject: RE: Can we talk later this afternoon?

2:30 Pacific time work?

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Tuesday, September 09, 2014 1:24 PM
To: 'Tom Birmingham'; Patterson,Roger K; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: Can we talk later this afternoon?

I am free, and there are several items to discuss following my conversation with John Bezdek. What times work for you?

From: Watts, John (Feinstein)
Sent: Tuesday, September 09, 2014 10:11 AM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mw20.com) (rpatterson@mw20.com); Bernhardt, David L.; 'Burman,Brenda W'
Cc: Yeung, Felix (Feinstein)
Subject: I talked to Bezdek

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From: Watts, John (Feinstein)
Sent: Tuesday, September 9, 2014 1:27 PM
To: 'Patterson,Roger K'; 'Tom Birmingham'; 'Bernhardt, David L.'; Burman,Brenda W
CC: Yeung, Felix (Feinstein)
Subject: RE: Can we talk later this afternoon?

Works for me.

From: Patterson,Roger K [<mailto:RPatterson@mwdh2o.com>]
Sent: Tuesday, September 09, 2014 4:26 PM
To: Watts, John (Feinstein); 'Tom Birmingham'; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: RE: Can we talk later this afternoon?

2:30 Pacific time work?

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Tuesday, September 09, 2014 1:24 PM
To: 'Tom Birmingham'; Patterson,Roger K; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: Can we talk later this afternoon?

I am free, and there are several items to discuss following my conversation with John Bezdek. What times work for you?

From: Watts, John (Feinstein)
Sent: Tuesday, September 09, 2014 10:11 AM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Bernhardt, David L.; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: I talked to Bezdek

There are several things to discuss. Can you talk either before 1 pm eastern time, or after 3:30 eastern time?

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From: Watts, John (Feinstein)
Sent: Tuesday, September 9, 2014 2:09 PM
To: 'Patterson,Roger K'; 'Tom Birmingham'; 'Bernhardt, David L.'; Burman,Brenda W
CC: Yeung, Felix (Feinstein)
Subject: Call at 230 pacific time, 530 eastern time

I just spoke with Tom and he can speak at 230 pacific time. So we are on. Roger, we will use your call-in number unless you tell us otherwise. Thanks.

From: Patterson,Roger K [<mailto:RPatterson@mwdh2o.com>]
Sent: Tuesday, September 09, 2014 4:26 PM
To: Watts, John (Feinstein); 'Tom Birmingham'; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: RE: Can we talk later this afternoon?

2:30 Pacific time work?

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Tuesday, September 09, 2014 1:24 PM
To: 'Tom Birmingham'; Patterson,Roger K; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: Can we talk later this afternoon?

I am free, and there are several items to discuss following my conversation with John Bezdek. What times work for you?

From: Watts, John (Feinstein)
Sent: Tuesday, September 09, 2014 10:11 AM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Bernhardt, David L.; 'Burman,Brenda W'
Cc: Yeung, Felix (Feinstein)
Subject: I talked to Bezdek

There are several things to discuss. Can you talk either before 1 pm eastern time, or after 3:30 eastern time?

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From: Patterson,Roger K
Sent: Tuesday, September 9, 2014 2:21 PM
To: Watts, John (Feinstein)
CC: Tom Birmingham; Bernhardt, David L.; Burman,Brenda W; Yeung, Felix (Feinstein)
Subject: Re: Call at 230 pacific time, 530 eastern time

Sounds good.

213-217-7888. 7781#

On Sep 9, 2014, at 2:09 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

I just spoke with Tom and he can speak at 230 pacific time. So we are on. Roger, we will use your call-in number unless you tell us otherwise. Thanks.

From: Patterson,Roger K [<mailto:RPatterson@mwdh2o.com>]
Sent: Tuesday, September 09, 2014 4:26 PM
To: Watts, John (Feinstein); 'Tom Birmingham'; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: RE: Can we talk later this afternoon?

2:30 Pacific time work?

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Tuesday, September 09, 2014 1:24 PM
To: 'Tom Birmingham'; Patterson,Roger K; 'Bernhardt, David L.'; Burman,Brenda W
Cc: Yeung, Felix (Feinstein)
Subject: Can we talk later this afternoon?

I am free, and there are several items to discuss following my conversation with John Bezdek. What times work for you?

From: Watts, John (Feinstein)
Sent: Tuesday, September 09, 2014 10:11 AM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Bernhardt, David L.; 'Burman,Brenda W'
Cc: Yeung, Felix (Feinstein)
Subject: I talked to Bezdek

There are several things to discuss. Can you talk either before 1 pm eastern time, or after 3:30 eastern time?

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From: Jason Peltier

Sent: Tuesday, September 9, 2014 4:44 PM

To: Tom Birmingham; Dennis Cardoza; Denny Rehberg; Joe Findaro; David Bernhardt; Sue Ramos

Subject: Valley communities lobby Congress one more time for drought help | Water and the Valley | FresnoBee.com

<http://www.fresnobee.com/2014/09/09/4114109/valley-communities-lobby-congress.html>

From: Watts, John (Feinstein)

Sent: Wednesday, September 10, 2014 10:52 AM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Burman, Brenda W; Bernhardt, David L.

CC: Yeung, Felix (Feinstein)

Subject: Request for a call today to discuss a possible alternative standard for agency operation under the BiOps to minimize water supply losses

Attachments: incidental take language 9-10-14.docx

Hi all. **Can we talk sometime today to discuss the attached confidential proposed language that I have drafted? I am free any time other than 4-430 eastern time.**

John Bezdek has shared the “mini-jeopardy analysis” that I sent you with the agencies’ legal team, and he is seeking to get their feedback by this evening (it could bleed to tomorrow, we’ll see). **If the agencies are willing to work constructively with the “mini-jeopardy” approach, I know that is our preferred option, and I agree we should go with it.**

If the agencies are not willing to work constructively with the “mini-jeopardy analysis” approach, I think we need a fall-back option. I have thought about this a great deal, and I think the most appropriate way to set a standard for evaluating implementation of the BiOps under the ESA is by tracking actual take compared to incidental take levels. I see many reasons to me to pursue this approach:

- 1) A clear quantitative standard like the ITL is the hardest for the agencies to evade and still impose unnecessary water supply restrictions. If take levels are significantly below the ITL as the year goes on as they have been in recent years, the agencies simply won’t be able to justify reductions in OMR levels.
- 2) To underscore the first point, my understanding is that listed salmonid take has generally been well below the ITL in recent years, and the same has been true for smelt as well. This suggests that requiring agencies to manage to the target of the ITL would reduce water supply restrictions, probably significantly.
- 3) I think that if we design the standard the right way, it would be hard for the agencies to object to it. As I understand it, the ITL is already used to make sure that project management is not causing excessively large amounts of take, which would require reconsultation that could further limit project operations. But besides having to comply with the ESA, the government has a contractual obligation to deliver water that is not needed for the ESA or other environmental requirements. If the ITL is already being used to track project operations to meet one legal obligation of the government, avoiding jeopardy, why shouldn’t it be used to meet another legal obligation of the government, delivering contractual water supplies that are not truly needed for some other purpose?
- 4) I think the right way to design a tracking standard based on the ITL is to require the Secretary to show “that any limitation of OMR flow to levels less negative than -5000 cubic feet per second in the short-term is necessary because otherwise project operation over the remainder of the water year more likely than not would exceed the incidental take level.” This is set forth in more detail in the attached draft language for smelt.
- 5) I use the “more likely than not” standard because as I understand it, the ITL is an operational target, the amount of take that is expected to occur. The “more likely than not” standard tracks take levels to a point where there is a 50% chance the ITL would be exceeded, and a 50% chance it will not be reached. This seems like the right balance for what is effectively an operational target. If the ITL were a true ceiling, I would suggest a standard of avoiding any risk that the ITL be exceeded. But this is not the case.
- 6) Finally, both Tom and Roger have raised concerns on past calls about how an ITL standard would apply to restrictions imposed during the first flush of sediment out the Delta each year, as occurred in 2012. It is true

that the ITL standard is not as useful at the very beginning of the year, because there is so much uncertainty as to what effects on the fish continued project operation over the remainder of the year would have. **I think that given the importance of the first flush of sediment for smelt and the difficulties of applying this standard at the very beginning of the year, we could justify setting a separate standard for management during the first flush of sediment.** I have proposed in the attached language one possible way to set such a separate standard for the first flush of sediment, but I am very open to ideas on this (and frankly would like to hear if you have any better suggestions for how to do this).

I look forward to discussing this possible fall-back approach with you.

John

Proposal to Modify Existing Language to Track Project Implementation Based on Actual Take as Compared to Incidental Take Levels

Redline of proposed changes to existing language:

Modify section 103(e) from the smelt title as follows (from the section entitled “Factoring increased real-time monitoring and updated science into delta smelt management”):

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December to June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island pursuant to this section indicates that a significant increase in the salvage of Delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt;

(3) except as provided in paragraph (4), document a showing, including an explanation of the data examined and the connection between the data and the choice made, that any limitation of OMR flow to levels less negative than -5000 cubic feet per second in the short-term is necessary because

(A) otherwise project operation over the remainder of the water year more likely than not would exceed the incidental take level; and

(B) following a review of other alternatives that may have a lesser water supply impact, no such alternatives would avoid the likelihood of exceeding the incidental take level; and

(4) during the first flush of sediment out the Delta in a particular water year, limit OMR levels by the minimum amount and for the minimum duration necessary to avoid jeopardy [or some agreed level of take to be negotiated over the next few days with the USFWS] to adult delta smelt (*Hypomesus transpacificus*) due to entrainment at Central Valley Project and State Water Project pumping plants, [subject to alternative voluntary restrictions agreed to by (whom?)].

[Similar language would apply to the management of OMR flows under the salmon biological opinion, without the exception in paragraph (4)]

From: Tom Birmingham

Sent: Wednesday, September 10, 2014 11:11 AM

To: Watts, John (Feinstein)

CC: Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Burman, Brenda W; Bernhardt, David L.; Yeung, Felix (Feinstein)

Subject: Re: Request for a call today to discuss a possible alternative standard for agency operation under the BiOps to minimize water supply losses

I can speak anytime between 5:00 and 6:30 Eastern time.

Sent from my iPhone

On Sep 10, 2014, at 1:51 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

Hi all. **Can we talk sometime today to discuss the attached confidential proposed language that I have drafted? I am free any time other than 4-430 eastern time.**

John Bezdek has shared the "mini-jeopardy analysis" that I sent you with the agencies' legal team, and he is seeking to get their feedback by this evening (it could bleed to tomorrow, we'll see). **If the agencies are willing to work constructively with the "mini-jeopardy" approach, I know that is our preferred option, and I agree we should go with it.**

If the agencies are not willing to work constructively with the "mini-jeopardy analysis" approach, I think we need a fall-back option. I have thought about this a great deal, and I think the most appropriate way to set a standard for evaluating implementation of the BiOps under the ESA is by tracking actual take compared to incidental take levels. I see many reasons to me to pursue this approach:

- 1) A clear quantitative standard like the ITL is the hardest for the agencies to evade and still impose unnecessary water supply restrictions. If take levels are significantly below the ITL as the year goes on as they have been in recent years, the agencies simply won't be able to justify reductions in OMR levels.
- 2) To underscore the first point, my understanding is that listed salmonid take has generally been well below the ITL in recent years, and the same has been true for smelt as well. This suggests that requiring agencies to manage to the target of the ITL would reduce water supply restrictions, probably significantly.
- 3) I think that if we design the standard the right way, it would be hard for the agencies to object to it. As I understand it, the ITL is already used to make sure that project management is not causing excessively large amounts of take, which would require reconsultation that could further limit project operations. But besides having to comply with the ESA, the government has a contractual obligation to deliver water that is not needed for the ESA or other environmental requirements. If the ITL is already being used to track project operations to meet one legal obligation of the government, avoiding jeopardy, why shouldn't it be used to meet another legal obligation of the government, delivering contractual water supplies that are not truly needed for some other purpose?

- 4) I think the right way to design a tracking standard based on the ITL is to require the Secretary to show “that any limitation of OMR flow to levels less negative than -5000 cubic feet per second in the short-term is necessary because otherwise project operation over the remainder of the water year more likely than not would exceed the incidental take level.” This is set forth in more detail in the attached draft language for smelt.
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- 6) Finally, both Tom and Roger have raised concerns on past calls about how an ITL standard would apply to restrictions imposed during the first flush of sediment out the Delta each year, as occurred in 2012. It is true that the ITL standard is not as useful at the very beginning of the year, because there is so much uncertainty as to what effects on the fish continued project operation over the remainder of the year would have. **I think that given the importance of the first flush of sediment for smelt and the difficulties of applying this standard at the very beginning of the year, we could justify setting a separate standard for management during the first flush of sediment.** I have proposed in the attached language one possible way to set such a separate standard for the first flush of sediment, but I am very open to ideas on this (and frankly would like to hear if you have any better suggestions for how to do this).

I look forward to discussing this possible fall-back approach with you.

John

<incidental take language 9-10-14.docx>

From: Watts, John (Feinstein)
Sent: Wednesday, September 10, 2014 12:51 PM
To: 'Tom Birmingham'
CC: Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Burman,Brenda W; Bernhardt, David L.; Yeung, Felix (Feinstein)
Subject: Call at 5 pm eastern time, 2 pm pacific time today to discuss language I sent earlier today

We will use Roger's call-in number 213-217-7888. 7781#

Roger and Tom have confirmed their availability

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]
Sent: Wednesday, September 10, 2014 2:11 PM
To: Watts, John (Feinstein)
Cc: Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); Burman,Brenda W; Bernhardt, David L.; Yeung, Felix (Feinstein)
Subject: Re: Request for a call today to discuss a possible alternative standard for agency operation under the BiOps to minimize water supply losses

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John

<incidental take language 9-10-14.docx>

From: Watts, John (Feinstein)
Sent: Wednesday, September 10, 2014 7:35 PM
To: 'RPatterson@mwdh2o.com'; 'tbirmingham@westlandswater.org'; 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'
CC: Yeung, Felix (Feinstein)
Subject: Fw: Fwd: Proposed changes to parts of smelt language for your consideration
Attachments: smelt changes 9-9-14 FWS EDITS.docx

See below, confidentially. I think this is progress.

I am not sure what to do about his concerns that Station 902 is too close to the pumps. Is there some other location that would work? Also, can someone explain to me in what ways and to what degree actual entrainment differs from measured incidental take?

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]
Sent: Wednesday, September 10, 2014 07:42 PM Eastern Standard Time
To: Watts, John (Feinstein)
Subject: Fwd: Proposed changes to parts of smelt language for your consideration

Sent from my iPad

Begin forwarded message:

From: "Lohofener, Ren" <ren_lohofener@fws.gov>
Date: September 10, 2014 at 11:55:15 AM EDT
To: John Bezdek <john_bezdek@ios.doi.gov>
Cc: Peg Romanik <PEG.ROMANIK@sol.doi.gov>, David Cottingham <david_cottingham@fws.gov>, Dan Castleberry <Dan_Castleberry@fws.gov>, Letty Belin <Letty_Belin@ios.doi.gov>
Subject: Re: Proposed changes to parts of smelt language for your consideration

John

Two concerns - neither "fall on sword" issues:

Station 902 - see comment. The difference is MET isn't concerned about entrainment, only measured incidental take. We ARE concerned about entrainment as this is real loss to the population.

"avoid jeopardy" - part of the larger conversation we are having. Wherever we land, we need to be consistent. See comment.

Add "contingent on funding" to ensure this is not an unfunded mandate.

thanks
Ren

On Tue, Sep 9, 2014 at 8:18 PM, John Bezdek <john_bezdek@ios.doi.gov> wrote:

Are you good with this?

Begin forwarded message:

From: "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov>
Date: September 9, 2014 at 8:27:29 AM PDT
To: "John Bezdek (John_Bezdek@ios.doi.gov)" <John_Bezdek@ios.doi.gov>
Subject: Proposed changes to parts of smelt language for your consideration

John,

I have attached proposed edits to the smelt title that Roger Patterson of Metropolitan believes Ren expressed a willingness to consider based on conversations they recently had. I wasn't part of those conversations, so I can't attest to what was said, but it is in the spirit of those conversations that these suggested edits are offered.

A couple of notes:

- 1) On the incidental take level, we are OK with the idea of a review and modification if warranted. It is critical for us to have a deadline for this review to be done, as we have previously discussed, and Metropolitan suggested a deadline based on their recent conversations with Ren.
- 2) On the monitoring during periods of high turbidity from December to March in section 103, we include specificity on the monitoring to be done in subsection (b), but give the Fish and Wildlife Service discretion in subsection (c) to alter the monitoring that is done, if the Fish and Wildlife Service determines that the monitoring should be changed to provide more useful data. So the agency retains the ultimate control of what monitoring is appropriate.

Please let me know if Interior is OK with these edits. Thanks.

John

Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE.

SEC. 101. FINDINGS.

[I would prefer to discuss appropriate findings at a later date]

SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

~~(a) In General. Consistent with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (including regulations) and subsection (b), the Director of the Fish and Wildlife Service shall work in a collaborative fashion to better understand methods of reducing entrainment risk to delta smelt and better understand delta smelt population effects as a result of entrainment. To accomplish these goals, the Service will~~

~~(1) use the best scientific and commercial data;~~

~~(2) use:~~

~~(A) new and updated statistical models, especially the delta smelt life history model;~~

~~(B) updated scientific data, especially data gained from surveys specifically designed to study delta smelt distribution and abundance and the early warning surveys; and~~

~~(C) studies designed specifically to improve understanding of delta smelt entrainment dynamics; and~~

~~(3) endeavor to understand loss of delta smelt due to entrainment and the population level impact of entrainment while allowing operations according to the reasonable and prudent alternatives described in the smelt biological opinion.~~

~~(b)(a)~~

Modified Incidental Take ~~Limit [Level].~~ ~~—~~ No later than ~~October~~January 1, 2015, the ~~Service shall~~Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data and best science, ~~including new and improved modeling,~~ to complete a review and ~~modification,~~ if warranted, a modification of the incidental take level in the smelt biological opinion ~~that—~~

~~(1) takes into account—~~

~~(A) salvage information available over at least 18 years;~~

~~(B) updated statistical models;~~

~~(C) updated scientific and commercial data; and~~

~~(D) the most recent information regarding delta smelt entrainment dynamics; and~~

~~(2) represents actual entrainment and the population level impact of entrainment while allowing operations in accordance with the smelt biological opinion.~~

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SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent ~~alternatives~~alternative described in the 2008 delta smelt biological opinion shall be implemented consistent with the best scientific and commercial data available.

(b) Increased Monitoring to Inform Real-time Operations.—~~Contingent upon funding.~~ On an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Director shall conduct early warning surveys that—

Commented [WU1]: We can't do it unless it is funded.

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(1) use the best survey methods at the most appropriate locations to detect adult delta smelt that might be associated with increased turbidity; and

(2) use results from those survey methods to help determine how data from increased surveys can improve risk assessment for delta smelt entrainment that may result ~~from~~ maximum rates of exports without increasing significant depletion of the species risk of causing jeopardy.

Commented [WU2]: The jeopardy language continues to be problematic. It is project operations that cause jeopardy or not. Perhaps putting it in the context of depleting the species might suffice.

(A) conduct daily monitoring using the best survey methods, which may include in Old River in the vicinity of Station 902, to detect adult Delta smelt that might be moving within the turbidity cloud toward the export pumps; and

Commented [WU3]: FWS believes Station 902 is too close to the pumps to be an effective early warning station. While we could include Station 902 in best survey methods it would just increase the cost and workload without, in our opinion, providing results we can use.

(B) use results from these early warning trawls to help determine how increased trawling can inform in real-time what levels of exports can be pumped without risk of a large smelt salvage event that would cause jeopardy.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Director determines it is appropriate, the Director shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the delta, is providing sufficient data to inform operations; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— No later than 2016 and for as long as needed, ~~contingent upon funding,~~ the Director of the United States Fish and Wildlife Service, in collaboration with other delta science partners, shall implement ~~surveys~~ new targeted sampling and monitoring specifically designed to understand delta smelt abundance ~~and~~ distribution, and the types of habitat occupied by delta smelt during all life stages.

Commented [WU4]: Can't do it unless funded

(2) SAMPLING.— the sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to best understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) should consider areas not routinely sampled by existing monitoring programs.

| including wetland channels, near-shore water, depths below 35 feet, and shallow-water;
| and

| (D~~E~~) will use the best survey methods, including sampling gear suited to the type of
| sampling or monitoring.

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—

| [Note: While we would propose further edits to this subsection, those edits are the subject of a
| separate discussion]

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~~CONFIDENTIAL~~

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From: Tom Birmingham

Sent: Thursday, September 11, 2014 6:28 AM

To: 'Watts, John (Feinstein)'; 'Yeung, Felix (Feinstein)'; 'Burman,Brenda W'; 'Patterson,Roger K'

CC: 'Bernhardt, David L.'

Subject: FW: Request for a call today to discuss a possible alternative standard for agency operation under the BiOps to minimize water supply losses

Attachments: incidental take language 9-10-14.docx

Here is a markup of the language we discussed yesterday evening.

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Sent: Wednesday, September 10, 2014 10:52 AM

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I look forward to discussing this possible fall-back approach with you.

John

Proposal to Modify Existing Language to Track Project Implementation Based on Actual Take as Compared to Incidental Take Levels

Redline of proposed changes to existing language:

Modify section 103(e) from the smelt title as follows (from the section entitled “Factoring increased real-time monitoring and updated science into delta smelt management”):

(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, in managing negative flow in the Old and Middle Rivers from December to June within the range established by the smelt biological opinion or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) document any significant facts about real-time conditions relevant to the determinations of the Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island pursuant to this section indicates that a significant increase in the salvage of Delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt;

(3) except as provided in paragraph (4), document a showing, including an explanation of the data examined and the connection between the data and the choice made, that management ~~any limitation~~ of OMR flow ~~at to~~ levels less negative than -5000 cubic feet per second in the short-term is necessary because

(A) otherwise export pumping rates ~~project operation~~ over the remainder of the water year ~~more likely than not would result in exceeding~~ the incidental take level; and

(B) following a review of ~~other~~ alternatives management actions that may have a lesser water supply impact, no such alternatives would avoid the likelihood of exceeding the incidental take level; and

(4) during the first flush of sediment out the Delta in a ~~particular~~ water year, limit OMR flow may be managed at rates less negative than -5000 cubic feet per second levels ~~by the minimum amount and for a the minimum duration necessary to avoid movement of jeopardy [or some agreed level of take to be negotiated over the next few days with the USFWS] to adult delta smelt (Hypomesus transpacificus) to areas in the southern Delta that would be likely to increase due to~~ entrainment at Central Valley Project and State

Water Project pumping plants, ~~[subject to alternative voluntary restrictions agreed to by (whom?)].~~

[Similar language would apply to the management of OMR flows under the salmon biological opinion, without the exception in paragraph (4)]

From: Burman,Brenda W
Sent: Thursday, September 11, 2014 12:12 PM
To: Tom Birmingham; Patterson,Roger K
CC: 'Bernhardt, David L.'
Subject: RE: Request for a call today to discuss a possible alternative standard for agency operation under the BiOps to minimize water supply losses
Attachments: OMR Language 9 11 14 doc.docx

Tom and Roger, Linus made this suggestion, working off of Tom's draft. Should I send to Watts?

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]
Sent: Thursday, September 11, 2014 6:28 AM
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- 3) I think that if we design the standard the right way, it would be hard for the agencies to object to it. As I understand it, the ITL is already used to make sure that project management is not causing excessively large amounts of take, which would require reconsultation that could further limit project operations. But besides having to comply with the ESA, the government has a contractual obligation to deliver water that is not needed for the ESA or other environmental requirements. If the ITL is already being used to track project operations to meet one legal obligation of the government, avoiding jeopardy, why shouldn't it be used to meet another legal obligation of the government, delivering contractual water supplies that are not truly needed for some other purpose?
- 4) I think the right way to design a tracking standard based on the ITL is to require the Secretary to show "that any limitation of OMR flow to levels less negative than -5000 cubic feet per second in the short-term is necessary because otherwise project operation over the remainder of the water year more likely than not would exceed the incidental take level." This is set forth in more detail in the attached draft language for smelt.
- 5) I use the "more likely than not" standard because as I understand it, the ITL is an operational target, the amount of take that is expected to occur. The "more likely than not" standard tracks take levels to a point where there is a 50% chance the ITL would be exceeded, and a 50% chance it will not be reached. This seems like the right balance for what is effectively an operational target. If the ITL were a true ceiling, I would suggest a standard of avoiding any risk that the ITL be exceeded. But this is not the case.
- 6) Finally, both Tom and Roger have raised concerns on past calls about how an ITL standard would apply to restrictions imposed during the first flush of sediment out the Delta each year, as occurred in 2012. It is true that the ITL standard is not as useful at the very beginning of the year, because there is so much uncertainty as to what effects on the fish continued project operation over the remainder of the year would have. **I think that given the importance of the first flush of sediment for smelt and the difficulties of applying this standard at the very beginning of the year, we could justify setting a separate standard for management during the first flush of sediment.** I have proposed in the attached language one possible way to set such a separate standard for the first flush of sediment, but I am very open to ideas on this (and frankly would like to hear if you have any better suggestions for how to do this).

I look forward to discussing this possible fall-back approach with you.

John

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(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, the Secretary shall manage negative flows in the Old and Middle Rivers from December to June under the Delta smelt biological opinion or any successor biological opinion, in accordance with the following criteria:

(1) Old and Middle River flows of -5000 cfs shall be the baseline operational condition for the operation of the Central Valley Project and State Water Project pumps in the Delta. Deviations from the baseline will be permitted only under the procedures and criteria set forth below:

(A) During the first flush of sediment out the Delta in a particular water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second levels for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment of adult delta smelt at Central Valley Project and State Water Project pumping plants;

(B) OMR flow rates may be managed at rates less negative than -5000 cubic feet per second when not doing so will result in exceeding the current or a successor incidental take limit in the Delta smelt Biological Opinion over the remainder of the water year; and

(C) In making any determinations under subsections (2) and (3) above to deviate from the -5000 cfs baseline, the Secretary shall utilize the best available science and shall issue a written determination explaining the data examined and the choices made, after consultation with representatives of the Bureau of Reclamation, DWR and the Federal and State Water Contractors. This determination shall include but not be limited to analysis of the following factors and evidence:

(i) relevant provisions of the Delta smelt Biological Opinion or any successor opinion;

(ii) all significant data and information regarding the distribution of Delta smelt and the risk of entrainment including whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island indicates that a significant increase in the salvage of Delta smelt is imminent;

(iii) whether near-term forecasts with available salvage and/or turbidity models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(iv) a review of other alternative management actions that may avoid exceedance of the incidental take limit with a lesser water supply impact.

From: Burman,Brenda W

Sent: Thursday, September 11, 2014 12:26 PM

To: Watts, John (Feinstein); Patterson,Roger K; 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'

CC: Yeung, Felix (Feinstein)

Subject: RE: Fwd: Proposed changes to parts of smelt language for your consideration

John, you asked about the difference between entrainment and measured incidental take. We asked Dave to provide an explanation and we can also discuss it over the phone if that is better. I've adapted Dave's explanation below.

Salvage and entrainment may be quite different. Measured incidental take is a projection of the number of smelt that would be counted at the two fish screen facilities if counting occurred 24 hours a day. In fact, they don't measure all 24 hours a day, but only a fraction of each day. So if they measure salvage 6 hours per day, then whatever they catch in that 6 hours is multiplied by 4 to get an "expanded" estimate of how many smelt would have been counted over the 24 hours. But actual mortality associated with the pumps could be considerably higher than this. Some fish pass right through the screen and into the pumps. Some, perhaps many fish never reach the screens at all because they are eaten in Clifton Court Forebay and the Tracy intake canal. Depending on your definition, "entrainment" could even extend out beyond the immediate vicinity of the export facilities if export pumping draws smelt out of low mortality habitat into higher mortality habitat. Common estimates are that 10 smelt are entrained for every one salvaged. But here too there is complexity. Under some conditions (high pumping, high turbidity), salvage and entrainment might be relatively close to the same numbers. Under other circumstances (low pumping and low turbidity), entrainment could be much higher than salvage. This is one reason that the use of salvage as a proxy for entrainment is a problem.

The contractors do not dispute that entrainment and salvage are different. But entrainment is not directly measured so its precise extent is not known. The contractors do dispute the constant ratio that is assumed between the two, the range of influence of the pumps, and we also question the fish agency assumptions about how smelt move in the system. Entrainment is one of the issues that CAMT is attempting to tackle.

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From: Watts, John (Feinstein)
Sent: Thursday, September 11, 2014 12:30 PM
To: 'Burman,Brenda W'; Patterson,Roger K; 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'
CC: Yeung, Felix (Feinstein)
Subject: RE: Fwd: Proposed changes to parts of smelt language for your consideration

Thanks, that is a thorough and helpful answer.

From: Burman,Brenda W [mailto:BBurman@mwdh2o.com]
Sent: Thursday, September 11, 2014 3:26 PM
To: Watts, John (Feinstein); Patterson,Roger K; 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'
Cc: Yeung, Felix (Feinstein)
Subject: RE: Fwd: Proposed changes to parts of smelt language for your consideration

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From: Burman,Brenda W

Sent: Thursday, September 11, 2014 6:33 PM

To: Yeung, Felix (Feinstein); Watts, John (Feinstein); Bradley.Cavallo@gmail.com; DBernhardt@BHFS.com; Tom Birmingham (tbirmingham@westlandswater.org)

CC: Patterson,Roger K

Subject: RE: marking/tagging language

Attachments: title II redline 09-11-14 930p edt.docx

Here is a markup of the salmon title including language from Felix. I worked on the study part and David will next work on the "standard". Sorry for delay.

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TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 201. DEFINITIONS.

In this title:

- (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the Assistant Administrator of NOAA Fisheries.
- (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin steelhead, natural origin genetic spring run Chinook, and genetic winter run salmon smolts.
- (3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and haul barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed though the Delta, as further described below.

- (1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.
- (2) The Administrator shall provide an opportunity for public review and comment on the pilot program and also seek an independent peer review of the program to improve its rigor and likelihood of success.
- (3) Upon completion of (2), above, the Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Administrator, the Commissioner or such other parties as they determine most suitable.
- (4) Subject to the availability of funding, the Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.
- (5) The Assistant Administrator and the Commissioner shall jointly report annually to

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the Senate EPW and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged and at the end of ~~six~~ seven years shall formulate recommendations as to the appropriate future role of such a program in the conservation of listed salmonids in the San Joaquin watershed.

(b) Enhanced Steelhead Study [Recommend further discussion in ripeness per 9.2.2014 discussion.}

(c) Experimental Variability.— [Recommend delete.]

(b) PIT-tag ~~Tagging~~ feasibility study -

(1) IN GENERAL.—The National Marine Fisheries Service, in collaboration with other delta science partners, shall implement tagging studies wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed ~~a PIT tag feasibility study. St~~ The studies may also be conducted to -should be designed to- aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

(e) Increased Monitoring to Inform Real-time Operations.— Starting in 2015, and on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Assistant Administrator shall —

(1) use the best survey methods at the most appropriate locations to detect migration and rearing of each species covered in the 2009 biological opinion; and

(2) use results from those survey methods to help calibrate real-time modeling tools, including the enhanced particle tracking model, and inform real-time operations consistent with the 2009 biological opinion or any successor opinion, including adaptive management provisions.

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SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. In response to the significant new science since the adoption of the salmonid biological opinion over 5 years before the date of enactment of this Act, and/or

Drought Relief Legislative Text for Salmon-Oriented Title II Sections
9.511.2014 draft

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~~pursuant to the~~ The reasonable and prudent alternatives described in the 2009 salmonid biological opinion ~~or any successor opinion~~ allow for and anticipate adjustments in operational criteria to reflect the best scientific and commercial data currently available, and authorizes experimental efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are ~~hereby authorized and directed and encouraged to utilize these authorities fully as described herein~~ issue a written reevaluation and determination, in accordance with the standards and procedures in subsection (b) —() whether—

(1) certain water export limitations in the salmonid biological opinion are necessary [to avoid jeopardy]; or

(2) the water export limitations provide minor benefits that are either unnecessary for species survival or can be more effectively achieved through broadening or initiating any of a range of alternative management measures.

(b) Framework for Evaluating the Necessity of Management Measures [for Avoiding Jeopardy].—

(1) IN GENERAL.—In order to evaluate whether existing or proposed water export limitations are necessary to avoid jeopardy in light of new science, the Secretary shall estimate the extent to which those export restrictions contribute to the survival of the species as compared to the contributions to species survival from other management measures pursuant to paragraph (2).

(2) ESTIMATES OF HOW MUCH DIFFERENT MANAGEMENT MEASURES CONTRIBUTE TO SPECIES SURVIVAL.—Not later than December 31, 2016, and every five years thereafter, the Secretary shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available, for each listed salmonid species issue final estimates of the increase in through-Delta survival the Secretary expects to be achieved—

(A) with export restrictions specified within RPA Actions IV.2.1 that limit flow to -5000 cubic feet per second compared to limiting flow to -2500 cubic feet per second, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(B) with inflow to export restrictions specified within RPA Actions IV.2.3 as compared to inflow to export requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

~~(a)~~

~~1) Examine and identify adjustments to the timing, triggers or threshold flow values, other operational details in the implementation of restrictions on pumping operations in RPA~~

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Drought Relief Legislative Text for Salmon-Oriented Title II Sections
9.511.2014 draft

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~~IV.2.1) pertaining to negative OMR flows at or below -5000 and recommend to the Commissioner said adjustments either experimentally or as part of the annual operating plan in the exercise of the adaptive management provisions of the 2009 BiOps or succeeding opinions;~~

- ~~1) Examine and recommend adjustments in the timing, triggers or threshold flow values other operational details in the implementation of pumping restrictions in RPA IV.2.3 pertaining to the inflow to exports requirements either experimentally or part of the annual operating plan.~~
- ~~1) In making these recommendations, the Assistant Administrator shall evaluate and describe the relative survival benefits of the recommendations as compared to a range of alternative measures that may offer equivalent or improved benefits with reduced negative effects on water supplies, including:~~
 - ~~d)a) by a tTrap and bargehaul programs based on the experience of other comparable systems and the study described in section , as that information becomes available;~~
 - ~~e)b) through Habitat improvements;~~
 - ~~c) Through Predation controls programs;~~
 - ~~f)d) Through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;~~
 - ~~g)e) by Collections and release programs at salvaging entrained fish at the entrance to Clifton Court Forebay; and~~
 - ~~h)f) by sSuch other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.~~
- ~~2) The Administrator shall make these estimates and determinations quantitatively where possible to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science. If the Secretary provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.~~

(c) Scientifically Supported Implementation of Delta Cross Channel and Old and Middle River Flow Requirements.—

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the salmonid biological opinion.

(2) REQUIREMENTS.—Beginning January 1, 2016, the Assistant Administrator shall recommend any adjustments to DCC operations and Old and Middle River flows to the Independent Annual Review panel, consistent with the adaptive management provisions of the salmonid biological opinion and as may be warranted based upon the best available science.

(A) In making recommendations, the Assistant Administrator shall—

Commented [WS1]: Check citation to RPA

Commented [BC2]: To me, this reads that they only need to do this if they're planning to restrict operations at OMR more negative than -5000. This may be true, but don't we first want to establish what they are to do at OMR values more positive than -5,000?

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(i) consider the relevant provisions in the 2009 biological opinion or any successor biological opinion;

(ii) consider new information available through new studies or analyses; and

(C) document any significant facts, including triggers, for real-time conditions relevant to the determinations of the Assistant Administrator of rates which reverse OMR flow will be managed.

(B) Following independent review, the Assistant Administrator shall make adjustments to operations as may be warranted, utilizing the adaptive management provisions. In making such adjustments, the Assistant Administrator shall articulate the basis for the adjustments, including an explanation of the information examined and the connection between the information and the choice made.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE DELTA AND ITS TRIBUTARIES, INCLUDING THE STANISLAUS RIVER

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River. The pilot program shall--

- (1) be scientifically based;
- (2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;
- (3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;
- (4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;
- (5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research and species enhancement permits needed to begin the pilot program; and
- (6) be implemented for a period of seven consecutive calendar years.

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(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct-

- (1) IN GENERAL- By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.
- (2) PARTICIPATION BY NOAA FISHERIES In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).
- (3) TIMING OF ELECTION- The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding-

- (1) ANNUAL FUNDING- The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.
- (2) ACCOUNTING- On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall

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be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation-

(1) IN GENERAL- On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT- On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that--

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process-

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews – To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions- For the purposes of this section:

(1) COMMISSIONER- The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS- The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM- The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset- The authorities provided under this section shall expire seven years after the implementation of the pilot program.

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SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

- (A) is one of the largest and most diverse estuaries in the United States,
- (B) is a natural treasure and a vital link in California's water system, and
- (C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and
- (D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

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(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

~~(iii)~~(i) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section _____, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

(vii) Paintersville Bridge,

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(viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(ix) Human-made submerged structures, and

(x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened

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Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

Commented [BW3]: From Felix

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall:

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The review shall:

(A) Be conducted by an independent science panel that includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries.

(B) Consider and give equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Be completed by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

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(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

(A) Any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

From: Burman,Brenda W

Sent: Thursday, September 11, 2014 6:44 PM

To: John Watts (john_watts@feinstein.senate.gov); Yeung, Felix (Feinstein)
(Felix_Yeung@feinstein.senate.gov)

CC: Patterson,Roger K; Tom Birmingham (tbirmingham@westlandswater.org); DBernhardt@BHFS.com

Subject: FW: Request for a call today to discuss a possible alternative standard for agency operation under the BiOps to minimize water supply losses

Attachments: OMR Language 9 11 14 doc.docx

[Here are some tweaks to Tom's language on smelt for discussion](#)

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(e) Scientifically Supported Implementation of Old and Middle River Flow Requirements.—Effective beginning December 1, 2014, the Secretary shall manage negative flows in the Old and Middle Rivers from December to June under the delta smelt biological opinion or any successor biological opinion, in accordance with the following criteria:

(1) Old and Middle River flows of -5000 cfs shall be the baseline operational condition for the operation of the Central Valley Project and State Water Project pumps in the Delta. Deviations from the baseline will be permitted only under the procedures and criteria set forth below:

(A) During the first flush of sediment out the Delta in a particular water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second levels for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment of adult delta smelt at Central Valley Project and State Water Project pumping plants;

(B) OMR flow rates may be managed at rates less negative than -5000 cubic feet per second when not doing so will result in exceeding the current or a successor incidental take limit in the Delta smelt Biological Opinion over the remainder of the water year; and

(C) In making any determinations under subsections (2) and (3) above to deviate from the -5000 cfs baseline, the Secretary shall utilize the best available science and shall issue a written determination explaining the data examined and the choices made, after consultation with representatives of the Bureau of Reclamation, DWR and the Federal and State Water Contractors. This determination shall include but not be limited to analysis of the following factors and evidence:

(i) relevant provisions of the Delta smelt Biological Opinion or any successor opinion;

(ii) all significant data and information regarding the distribution of Delta smelt and the risk of entrainment including whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island indicates that a significant increase in the salvage of Delta smelt is imminent;

(iii) whether near-term forecasts with available salvage and/or turbidity models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(iv) a review of other alternative management actions that may avoid exceedance of the incidental take limit with a lesser water supply impact.

From: Watts, John (Feinstein)

Sent: Friday, September 12, 2014 6:27 AM

To: 'Burman,Brenda W'; Yeung, Felix (Feinstein); Bradley.Cavallo@gmail.com; DBernhardt@BHFS.com; Tom Birmingham (tbirmingham@westlandswater.org)

CC: Patterson,Roger K

Subject: Request for responses to my questions on salmon language this morning, so we can send our edits to Will Stelle and go over our edits with him today

Attachments: title II redline 09-11-14 930p edt.docx

Importance: High

Hi all. I have a few questions about what you sent me on the salmon language. Can you get me answers this morning if at all possible, so we can set up a call with Will Stelle for this afternoon or tomorrow to go over our language? Here are my comments and questions, starting with the more significant ones:

- 1) **In section 203(c), we rely on the existing adaptive management program to make changes to OMR flow operations. Aren't we concerned that the existing adaptive management approach requires broad reconsultation for anything that NOAA Fisheries determines not to be consistent with the biological opinion's analysis and conclusions?** I think we need to at least flag the issue of allowing more flexibility to make some meaningful incremental changes without undergoing broad reconsultation. Otherwise I fear NOAA Fisheries will say, "Sorry, we can't do that, because it would require reconsultation." Anyone have any suggestions about this issue? Is it possible we could set up a process for a narrow targeted reconsultation without a full EIS for some incremental changes, or is that not realistic?
- 2) **Why have we extended Will's 6-year wait for recommendations from the trap and barge pilot program, and now made it 7 years?** Aren't we playing into their hands of delaying making any changes to the Biops? Why can't they make recommendations after 3 years of implementing the program at the maximum?
- 3) I wonder whether we should strike section 203(c)(1), which expressly disavows any possibility of addressing the limit on OMR flows to -5000 cfs per second. I think we should focus on restrictions to levels less negative than -5000 cfs OMR, but I don't know that we want to take the issue of higher flows (perhaps on a temporary basis) completely off the table. The language of section 203(c)(1) is below:

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the salmonid biological opinion.

- 4) Can we mention PIT tagging as an example of the tagging studies they are to implement? Nothing stops them from implementing PIT tagging in our language, so why not give NOAA Fisheries a mention of the type of study they want to do (which still won't require they do it)?
- 5) Why did we strike section 202(c) on "Enhanced monitoring to inform real-time operations"?
- 6) Should we simply strike the enhanced steelhead study in section 202(b)? It is already effectively stricken with a bracketed note.

From: Burman,Brenda W [mailto:BBurman@mwdh2o.com]

Sent: Thursday, September 11, 2014 9:33 PM

To: Yeung, Felix (Feinstein); Watts, John (Feinstein); Bradley.Cavallo@gmail.com; DBernhardt@BHFS.com; Tom Birmingham (tbirmingham@westlandswater.org)

Cc: Patterson,Roger K

Subject: RE: marking/tagging language

Here is a markup of the salmon title including language from Felix. I worked on the study part and David will next work on the “standard”. Sorry for delay.

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TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 201. DEFINITIONS.

In this title:

- (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the Assistant Administrator of NOAA Fisheries.
- (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin steelhead, natural origin genetic spring run Chinook, and genetic winter run salmon smolts.
- (3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and haul barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed through the Delta, as further described below.

- (1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.
- (2) The Administrator shall provide an opportunity for public review and comment on the pilot program and also seek an independent peer review of the program to improve its rigor and likelihood of success.
- (3) Upon completion of (2), above, the Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Administrator, the Commissioner or such other parties as they determine most suitable.
- (4) Subject to the availability of funding, the Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.
- (5) The Assistant Administrator and the Commissioner shall jointly report annually to

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the Senate EPW and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged and at the end of ~~six~~ seven years shall formulate recommendations as to the appropriate future role of such a program in the conservation of listed salmonids in the San Joaquin watershed.

(b) Enhanced Steelhead Study [Recommend further discussion in ripeness per 9.2.2014 discussion.}

(c) Experimental Variability.— [Recommend delete.]

(b) PIT-tag ~~Tagging~~ feasibility study -

(1) IN GENERAL.—The National Marine Fisheries Service, in collaboration with other delta science partners, shall implement tagging studies wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed ~~a PIT tag feasibility study. St~~ The studies may also be conducted to -should be designed to- aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

(e) Increased Monitoring to Inform Real-time Operations.— Starting in 2015, and on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Assistant Administrator shall —

(1) use the best survey methods at the most appropriate locations to detect migration and rearing of each species covered in the 2009 biological opinion; and

(2) use results from those survey methods to help calibrate real-time modeling tools, including the enhanced particle tracking model, and inform real-time operations consistent with the 2009 biological opinion or any successor opinion, including adaptive management provisions.

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SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. In response to the significant new science since the adoption of the salmonid biological opinion over 5 years before the date of enactment of this Act, and/or

Drought Relief Legislative Text for Salmon-Oriented Title II Sections
9.511.2014 draft

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~~pursuant to the~~ The reasonable and prudent alternatives described in the 2009 salmonid biological opinion ~~or any successor opinion~~ allow for and anticipate adjustments in operational criteria to reflect the best scientific and commercial data currently available, and authorizes experimental efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are ~~hereby authorized and directed and encouraged to utilize these authorities fully as described herein~~ issue a written reevaluation and determination, in accordance with the standards and procedures in subsection (b) —() whether—

(1) certain water export limitations in the salmonid biological opinion are necessary [to avoid jeopardy]; or

(2) the water export limitations provide minor benefits that are either unnecessary for species survival or can be more effectively achieved through broadening or initiating any of a range of alternative management measures.

(b) Framework for Evaluating the Necessity of Management Measures [for Avoiding Jeopardy].—

(1) IN GENERAL.—In order to evaluate whether existing or proposed water export limitations are necessary to avoid jeopardy in light of new science, the Secretary shall estimate the extent to which those export restrictions contribute to the survival of the species as compared to the contributions to species survival from other management measures pursuant to paragraph (2).

(2) ESTIMATES OF HOW MUCH DIFFERENT MANAGEMENT MEASURES CONTRIBUTE TO SPECIES SURVIVAL.—Not later than December 31, 2016, and every five years thereafter, the Secretary shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available, for each listed salmonid species issue final estimates of the increase in through-Delta survival the Secretary expects to be achieved—

(A) with export restrictions specified within RPA Actions IV.2.1 that limit flow to -5000 cubic feet per second compared to limiting flow to -2500 cubic feet per second, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(B) with inflow to export restrictions specified within RPA Actions IV.2.3 as compared to inflow to export requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

~~(a)~~

~~1) Examine and identify adjustments to the timing, triggers or threshold flow values, other operational details in the implementation of restrictions on pumping operations in RPA~~

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Drought Relief Legislative Text for Salmon-Oriented Title II Sections
9.511.2014 draft

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~~IV.2.1) pertaining to negative OMR flows at or below -5000 and recommend to the Commissioner said adjustments either experimentally or as part of the annual operating plan in the exercise of the adaptive management provisions of the 2009 BiOps or succeeding opinions;~~

- ~~1) Examine and recommend adjustments in the timing, triggers or threshold flow values other operational details in the implementation of pumping restrictions in RPA IV.2.3 pertaining to the inflow to exports requirements either experimentally or part of the annual operating plan.~~
- ~~1) In making these recommendations, the Assistant Administrator shall evaluate and describe the relative survival benefits of the recommendations as compared to a range of alternative measures that may offer equivalent or improved benefits with reduced negative effects on water supplies, including:~~
 - ~~d)a) by a tTrap and bargehaul programs based on the experience of other comparable systems and the study described in section , as that information becomes available;~~
 - ~~e)b) through Habitat improvements;~~
 - ~~c) Through Predation controls programs;~~
 - ~~f)d) Through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;~~
 - ~~g)e) by Collections and release programs at salvaging entrained fish at the entrance to Clifton Court Forebay; and~~
 - ~~h)f) by sSuch other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.~~
- ~~2) The Administrator shall make these estimates and determinations quantitatively where possible to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science. If the Secretary provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.~~

(c) Scientifically Supported Implementation of Delta Cross Channel and Old and Middle River Flow Requirements.—

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the salmonid biological opinion.

(2) REQUIREMENTS.—Beginning January 1, 2016, the Assistant Administrator shall recommend any adjustments to DCC operations and Old and Middle River flows to the Independent Annual Review panel, consistent with the adaptive management provisions of the salmonid biological opinion and as may be warranted based upon the best available science.

(A) In making recommendations, the Assistant Administrator shall—

Commented [WS1]: Check citation to RPA

Commented [BC2]: To me, this reads that they only need to do this if they're planning to restrict operations at OMR more negative than -5000. This may be true, but don't we first want to establish what they are to do at OMR values more positive than -5,000?

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(i) consider the relevant provisions in the 2009 biological opinion or any successor biological opinion;

(ii) consider new information available through new studies or analyses; and

(C) document any significant facts, including triggers, for real-time conditions relevant to the determinations of the Assistant Administrator of rates which reverse OMR flow will be managed.

(B) Following independent review, the Assistant Administrator shall make adjustments to operations as may be warranted, utilizing the adaptive management provisions. In making such adjustments, the Assistant Administrator shall articulate the basis for the adjustments, including an explanation of the information examined and the connection between the information and the choice made.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE DELTA AND ITS TRIBUTARIES, INCLUDING THE STANISLAUS RIVER

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River. The pilot program shall--

- (1) be scientifically based;
- (2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;
- (3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;
- (4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;
- (5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research and species enhancement permits needed to begin the pilot program; and
- (6) be implemented for a period of seven consecutive calendar years.

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(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct-

- (1) IN GENERAL- By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.
- (2) PARTICIPATION BY NOAA FISHERIES In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).
- (3) TIMING OF ELECTION- The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding-

- (1) ANNUAL FUNDING- The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.
- (2) ACCOUNTING- On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall

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be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation-

(1) IN GENERAL- On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT- On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that--

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process-

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews – To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions- For the purposes of this section:

(1) COMMISSIONER- The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS- The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM- The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset- The authorities provided under this section shall expire seven years after the implementation of the pilot program.

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SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

- (A) is one of the largest and most diverse estuaries in the United States,
- (B) is a natural treasure and a vital link in California's water system, and
- (C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and
- (D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

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(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

~~(iii)~~(i) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section _____, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

(vii) Paintersville Bridge,

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(viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(ix) Human-made submerged structures, and

(x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened

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Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

Commented [BW3]: From Felix

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall:

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The review shall:

(A) Be conducted by an independent science panel that includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries.

(B) Consider and give equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Be completed by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

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(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

(A) Any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

From: Watts, John (Feinstein)

Sent: Friday, September 12, 2014 6:32 AM

To: 'Burman,Brenda W'; Yeung, Felix (Feinstein); 'Bradley.Cavallo@gmail.com'; 'DBernhardt@BHFS.com'; 'Tom Birmingham (tbirmingham@westlandswater.org)'

CC: 'Patterson,Roger K'

Subject: RE: Request for responses to my questions on salmon language this morning, so we can send our edits to Will Stelle and go over our edits with him today

PS I don't think we need to include more language on the "standard," as you describe that, because we are working on that separately. I can mention that we are working on that separately in a cover email to Will.

From: Watts, John (Feinstein)

Sent: Friday, September 12, 2014 9:27 AM

To: 'Burman,Brenda W'; Yeung, Felix (Feinstein); Bradley.Cavallo@gmail.com; DBernhardt@BHFS.com; Tom Birmingham (tbirmingham@westlandswater.org)

Cc: Patterson,Roger K

Subject: Request for responses to my questions on salmon language this morning, so we can send our edits to Will Stelle and go over our edits with him today

Importance: High

Hi all. I have a few questions about what you sent me on the salmon language. Can you get me answers this morning if at all possible, so we can set up a call with Will Stelle for this afternoon or tomorrow to go over our language? Here are my comments and questions, starting with the more significant ones:

- 1) **In section 203(c), we rely on the existing adaptive management program to make changes to OMR flow operations. Aren't we concerned that the existing adaptive management approach requires broad reconsultation for anything that NOAA Fisheries determines not to be consistent with the biological opinion's analysis and conclusions?** I think we need to at least flag the issue of allowing more flexibility to make some meaningful incremental changes without undergoing broad reconsultation. Otherwise I fear NOAA Fisheries will say, "Sorry, we can't do that, because it would require reconsultation." Anyone have any suggestions about this issue? Is it possible we could set up a process for a narrow targeted reconsultation without a full EIS for some incremental changes, or is that not realistic?
- 2) **Why have we extended Will's 6-year wait for recommendations from the trap and barge pilot program, and now made it 7 years?** Aren't we playing into their hands of delaying making any changes to the Biops? Why can't they make recommendations after 3 years of implementing the program at the maximum?
- 3) I wonder whether we should strike section 203(c)(1), which expressly disavows any possibility of addressing the limit on OMR flows to -5000 cfs per second. I think we should focus on restrictions to levels less negative than -5000 cfs OMR, but I don't know that we want to take the issue of higher flows (perhaps on a temporary basis) completely off the table. The language of section 203(c)(1) is below:

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the salmonid biological opinion.

- 4) Can we mention PIT tagging as an example of the tagging studies they are to implement? Nothing stops them from implementing PIT tagging in our language, so why not give NOAA Fisheries a mention of the type of study they want to do (which still won't require they do it)?
- 5) Why did we strike section 202(c) on "Enhanced monitoring to inform real-time operations"?
- 6) Should we simply strike the enhanced steelhead study in section 202(b)? It is already effectively stricken with a bracketed note.

From: Burman,Brenda W [<mailto:BBurman@mwdh2o.com>]

Sent: Thursday, September 11, 2014 9:33 PM

To: Yeung, Felix (Feinstein); Watts, John (Feinstein); Bradley.Cavallo@gmail.com; DBernhardt@BHFS.com; Tom Birmingham (tbirmingham@westlandswater.org)

Cc: Patterson,Roger K

Subject: RE: marking/tagging language

Here is a markup of the salmon title including language from Felix. I worked on the study part and David will next work on the "standard". Sorry for delay.

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From: Watts, John (Feinstein)
Sent: Friday, September 12, 2014 1:29 PM
To: 'Tom Birmingham (tbirmingham@westlandswater.org)'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com)
CC: 'Burman,Brenda W'; Bradley Cavallo; Bernhardt, David L.; Yeung, Felix (Feinstein)
Subject: FW: Can we do a call later today or over the weekend to discuss the salmon language?
Attachments: title II redline 09-12-14.docx; title II clean 09-12-14.docx

Attached are the suggested edits to the salmon title that I sent to Will Stelle, and my request for a call later today or over the weekend to discuss them.

From: Watts, John (Feinstein)
Sent: Friday, September 12, 2014 4:27 PM
To: 'will.stelle@noaa.gov'
Cc: 'Joan R Langhans'; 'Karen Hyun - NOAA Federal'; Albritton, Jason (EPW); Esquivel, Joaquin (Boxer); Yeung, Felix (Feinstein)
Subject: Can we do a call later today or over the weekend to discuss the salmon language?

Will,

Hope you are well and the weather on the Pacific Coast is as beautiful today as it is in DC. Attached are some confidential suggested edits to the language on the salmon title that you sent us last Friday evening. I have attached both a redline version showing suggested changes from what you sent us, and a clean version in case it is easier to read.

Can we set up a call for some time later today or over the weekend to discuss this?

This call would not be primarily intended to focus on the “jeopardy issue,” but instead to focus on other parts of the salmon language, operating from the assumption that we can work out an agreement on a rigorous, quantitative standard for evaluating project operations under the BiOps.

Thanks for all your hard work on this legislative proposal.

Best,

John
202-■■■■-■■■■ direct

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TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 201. DEFINITIONS.

In this title:

- (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the Assistant Administrator of NOAA Fisheries.
- (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin steelhead, natural origin genetic spring run Chinook, and genetic winter run salmon smolts.
- (3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and haul barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed though the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to

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the Senate EPW and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, -and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner's recommendations regarding broadening the pilot program and adjusting the provisions of the salmon biological opinion pursuant to section 203 at the end of six seven ——— years shall formulate recommendations as to the appropriate future role of such a program in the conservation of listed salmonids in the San Joaquin watershed.

(b) Enhanced Steelhead Study [Recommend delete, per your recommendation further discussion in ripeness per 9.2.2014 discussion.]

(c) Experimental Variability.— [Recommend delete, per your recommendation.]

(b) PIT-tagTagging feasibility studiesy -

(1) IN GENERAL.—The National Marine Fisheries Service, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed. PIT-tag feasibility study. StThe studies may also be conducted to -should be designed to- aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

(e) Increased Monitoring to Inform Real-time Operations.— Starting in 2015, and on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Assistant Administrator shall —

(1) use the best survey methods at the most appropriate locations to detect migration and rearing of each species covered in the 2009 biological opinion; and

(2) use results from those survey methods to help calibrate real-time modeling tools, including the enhanced particle-tracking model, and inform real-time operations consistent with the 2009 biological opinion or any successor opinion, including adaptive management provisions.

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SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. In response to the significant new science since the adoption of the salmonid biological opinion over 5 years before the date of enactment of this Act, and/or pursuant to t~~The reasonable and prudent alternatives described in the 2009 salmonid biological opinion or any successor opinion~~-allow for and anticipat~~es~~ adjustments in operational criteria to reflect the best scientific and commercial data currently available, and authorizes experimental efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby authorized and directed and encouraged to utilize these authorities fully as described herein.~~issue a written reevaluation and determination, in accordance with the standards and procedures in subsection (b) –(c)– whether—~~

(1) certain water export limitations in the salmonid biological opinion are necessary [to avoid jeopardy]; or

(2) the water export limitations provide minor benefits that are either unnecessary for species survival or can be more effectively achieved through broadening or initiating any of a range of alternative management measures.

(b) Framework for Evaluating the Necessity of Management Measures [for Avoiding Jeopardy].—

(1) IN GENERAL.—In order to evaluate whether existing or proposed water export limitations are necessary to avoid jeopardy in light of new science, the Secretary shall estimate the extent to which those export restrictions contribute to the survival of the species as compared to the contributions to species survival from other management measures pursuant to paragraph (2).

(2) ESTIMATES OF HOW MUCH DIFFERENT MANAGEMENT MEASURES CONTRIBUTE TO SPECIES SURVIVAL.—Not later than December 31, 2015~~6~~, and every five years thereafter, the Secretary shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available, for each listed salmonid species issue final estimates of the increase in through-Delta survival the Secretary expects to be achieved—

(A) with export restrictions specified within RPA Actions IV.2.1 that limit flow to -5000 cubic feet per second compared to limiting flow to -2500 cubic feet per second, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(B) with inflow to export restrictions specified within RPA Actions IV.2.3 as compared to inflow to export requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other

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relevant factors constant:

(a)

- 1) ~~Examine and identify adjustments to the timing, triggers or threshold flow values~~ other operational details in the implementation of restrictions on pumping operations in RPA IV.2.3 pertaining to negative OMR flows at or below 5000 and recommend to the Commissioner said adjustments either experimentally or as part of the annual operating plan in the exercise of the adaptive management provisions of the 2009 BiOps or succeeding opinions;
 - 1) ~~Examine and recommend adjustments in the timing, triggers or threshold flow values~~ other operational details in the implementation of pumping restrictions in RPA IV.2.3 pertaining to the inflow to exports requirements either experimentally or part of the annual operating plan.
 - 1) ~~In making these recommendations, the Assistant Administrator shall evaluate and describe the relative survival benefits of the recommendations as compared to a range of alternative measures that may offer equivalent or improved benefits with reduced negative effects on water supplies, including:~~
 - ~~(C) by a trap and barge haul program based on the experience of other comparable systems and the study described in section , as that information becomes available;~~
 - ~~a) (D) through Habitat improvements;~~
 - ~~(E) through predation controls programs;~~
 - ~~b) (F) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;~~
 - ~~c) (G) by collections and release programs at salvaging entrained fish at the entrance to Clifton Court Forebay; and~~
 - ~~d) (H) by such other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.~~
 - 2) ~~The Administrator shall make these estimates and determinations quantitatively where possible to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.~~
 - 2)3) ~~If the Secretary provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.~~
- (c) Scientifically Supported Implementation of Delta Cross Channel and Old and Middle River Flow Requirements.— [IMPORTANT NOTE: we understand why you want to use the adaptive management provisions of the biological opinion. We are concerned, however, that these provisions could be interpreted to prevent most meaningful changes to project operations without undergoing a broad reconsultation. The provisions could also be interpreted more flexibly, but we are not confident they would be interpreted in such a flexible manner. We need to clarify how these provisions might be interpreted if we are going to give these provisions a prominent role in the legislation.]

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~~(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the salmonid biological opinion.~~

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~~(2) REQUIREMENTS.—~~Beginning January 1, 2016, the Assistant Administrator shall recommend any adjustments to DCC operations and Old and Middle River flows to the Independent Annual Review panel, consistent with the adaptive management provisions of the salmonid biological opinion and as may be warranted based upon the best available science.

(A) In making recommendations, the Assistant Administrator shall—

(i) consider the relevant provisions in the 2009 biological opinion or any successor biological opinion;

(ii) consider new information available through new studies or analyses; and

(C) document any significant facts, including triggers, for real-time conditions relevant to the determinations of the Assistant Administrator of rates which reverse OMR flow will be managed.

(B) Following independent review, the Assistant Administrator shall make adjustments to operations as may be warranted, utilizing the adaptive management provisions. In making such adjustments, the Assistant Administrator shall articulate the basis for the adjustments, including an explanation of the information examined and the connection between the information and the choice made.

We would need to work into this section some version of the following language:

(3) EXPLANATION.—In any analysis [of potential jeopardy] conducted pursuant to paragraph (2)(B), the Secretary shall explain why implementation of OMR flow rate less negative than -5,000 cubic feet per second is necessary [to avoid jeopardy] or [to achieve certain quantified benefits or to avoid certain quantified harms for listed salmonid species], including by determining that—

(A) it is not technically feasible or within Federal jurisdiction to achieve any increased survival benefit of the same or greater quantity from broadening or initiating any of the management measures described in subsection (b)(2) or other alternative management measures, including measures implemented with the support of a substantial contribution from water districts;

(B) if it is technically feasible and within Federal jurisdiction to implement any such alternative management measures, the adverse consequences of doing so exceed the adverse consequences of limiting OMR flow to levels less negative than -5000 cubic feet per second, including a concise evaluation of the adverse consequences to other affected interests; or

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(C) it is technically feasible but not within Federal jurisdiction to implement certain alternative management measures, in which case the Secretary shall specifically describe the determination and the 1 or more alternative management measures.

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SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE DELTA AND ITS TRIBUTARIES, INCLUDING THE STANISLAUS RIVER

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River. The pilot program shall--

- (1) be scientifically based;
- (2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;
- (3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;
- (4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;
- (5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research and species enhancement permits needed to begin the pilot program; and
- (6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure,

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management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct-

(1) IN GENERAL- By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION- The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding-

(1) ANNUAL FUNDING- The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

(2) ACCOUNTING- On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation-

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(1) IN GENERAL- On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT- On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that--

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process-

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews – To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions- For the purposes of this section:

(1) COMMISSIONER- The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS- The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM- The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset- The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND

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ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California's water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and

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Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section _____, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

(vii) Paintersville Bridge,

(viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

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- (ix) Human-made submerged structures, and
- (x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

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(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall:

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The review shall:

(A) Be conducted by an independent science panel that includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries.

(B) Consider and give equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Be completed by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

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(A) Any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

- (1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and
- (2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

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TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 201. DEFINITIONS.

In this title:

(1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the Assistant Administrator of NOAA Fisheries.

(2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin steelhead, natural origin genetic spring run Chinook, and genetic winter run salmon smolts.

(3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed through the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to

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the Senate EPW and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner's recommendations regarding broadening the pilot program and adjusting the provisions of the salmon biological opinion pursuant to section 203

(b) Enhanced Steelhead Study [Recommend delete, per your recommendation]

(c) Experimental Variability.— [Recommend delete, per your recommendation.]

(b) Tagging studies -

(1) IN GENERAL.—The National Marine Fisheries Service, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed. Studies may also be conducted to aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. In response to the significant new science since the adoption of the salmonid biological opinion over 5 years before the date of enactment of this Act, and/or pursuant to the reasonable and prudent alternatives described in the 2009 salmonid biological opinion allow for and anticipates adjustments in operational criteria to reflect the best scientific and commercial data currently available, and authorizes experimental efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are authorized and directed to issue a written reevaluation and determination, in accordance with the standards and procedures in subsection (b) –(c) whether—

(1) certain water export limitations in the salmonid biological opinion are necessary [to avoid jeopardy]; or

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(2) the water export limitations provide minor benefits that are either unnecessary for species survival or can be more effectively achieved through broadening or initiating any of a range of alternative management measures.

(b) Framework for Evaluating the Necessity of Management Measures [for Avoiding Jeopardy].—

(1) IN GENERAL.—In order to evaluate whether existing or proposed water export limitations are necessary to avoid jeopardy in light of new science, the Secretary shall estimate the extent to which those export restrictions contribute to the survival of the species as compared to the contributions to species survival from other management measures pursuant to paragraph (2).

(2) ESTIMATES OF HOW MUCH DIFFERENT MANAGEMENT MEASURES CONTRIBUTE TO SPECIES SURVIVAL.—Not later than December 31, 2015, and every five years thereafter, the Secretary shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available, for each listed salmonid species issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—

(A) with export restrictions specified within RPA Actions IV.2.1 that limit flow to -5000 cubic feet per second compared to limiting flow to -2500 cubic feet per second, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(B) with inflow to export restrictions specified within RPA Actions IV.2.3 as compared to inflow to export requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(C) by a trap and barge program based on the experience of other comparable systems and the study described in section ____, as that information becomes available;

a) (D) through Habitat improvements;

(E) through predation control programs;

b) (F) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;

c) (G) by salvaging entrained fish at the entrance to Clifton Court Forebay; and

d) (H) by such other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

2) The Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

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- 3) If the Secretary provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.

(c) Scientifically Supported Implementation of Delta Cross Channel and Old and Middle River Flow Requirements.— [IMPORTANT NOTE: we understand why you want to use the adaptive management provisions of the biological opinion. We are concerned, however, that these provisions could be interpreted to prevent most meaningful changes to project operations without undergoing a broad reconsultation. The provisions could also be interpreted more flexibly, but we are not confident they would be interpreted in such a flexible manner. We need to clarify how these provisions might be interpreted if we are going to give these provisions a prominent role in the legislation.]

Beginning January 1, 2016, the Assistant Administrator shall recommend any adjustments to DCC operations and Old and Middle River flows to the Independent Annual Review panel, consistent with the adaptive management provisions of the salmonid biological opinion and as may be warranted based upon the best available science.

(A) In making recommendations, the Assistant Administrator shall—

(i) consider the relevant provisions in the 2009 biological opinion or any successor biological opinion;

(ii) consider new information available through new studies or analyses; and

(C) document any significant facts, including triggers, for real-time conditions relevant to the determinations of the Assistant Administrator of rates which reverse OMR flow will be managed.

(B) Following independent review, the Assistant Administrator shall make adjustments to operations as may be warranted, utilizing the adaptive management provisions. In making such adjustments, the Assistant Administrator shall articulate the basis for the adjustments, including an explanation of the information examined and the connection between the information and the choice made.

We would need to work into this section some version of the following language:

(3) EXPLANATION.—In any analysis [of potential jeopardy] conducted pursuant to paragraph (2)(B), the Secretary shall explain why implementation of OMR flow rate less negative than -5,000 cubic feet per second is necessary [to avoid jeopardy] or [to achieve certain quantified benefits or to avoid certain quantified harms for listed salmonid species], including by determining that—

(A) it is not technically feasible or within Federal jurisdiction to achieve any increased survival benefit of the same or greater quantity from broadening or initiating any of the management measures described in subsection (b)(2) or other alternative

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management measures, including measures implemented with the support of a substantial contribution from water districts;

(B) if it is technically feasible and within Federal jurisdiction to implement any such alternative management measures, the adverse consequences of doing so exceed the adverse consequences of limiting OMR flow to levels less negative than -5000 cubic feet per second, including a concise evaluation of the adverse consequences to other affected interests; or

(C) it is technically feasible but not within Federal jurisdiction to implement certain alternative management measures, in which case the Secretary shall specifically describe the determination and the 1 or more alternative management measures.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE DELTA AND ITS TRIBUTARIES, INCLUDING THE STANISLAUS RIVER

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River. The pilot program shall--

- (1) be scientifically based;
- (2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;
- (3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;
- (4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;

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(5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research and species enhancement permits needed to begin the pilot program; and

(6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct-

(1) IN GENERAL- By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION- The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding-

(1) ANNUAL FUNDING- The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

(2) ACCOUNTING- On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the

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participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation-

(1) IN GENERAL- On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT- On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that--

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process-

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews – To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions- For the purposes of this section:

(1) COMMISSIONER- The term `Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS- The term `districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

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(3) PILOT PROGRAM- The term `program' means the pilot non-native predator removal program established under this section.

(i) Sunset- The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California's water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento–San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

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(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section _____, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

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- (iv) Georgiana Slough,
- (v) Old and Middle Rivers,
- (vi) Franks Tract,
- (vii) Paintersville Bridge,
- (viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,
- (ix) Human-made submerged structures, and
- (x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

- (A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,
- (B) water quality, and
- (C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

- (1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

Technical Assistance Only: Not Representative of Administration Policy or Positions

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall:

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The review shall:

(A) Be conducted by an independent science panel that includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries.

(B) Consider and give equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Be completed by December 31, 2015.

Technical Assistance Only: Not Representative of Administration Policy or Positions

- (2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.
- (3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.
 - (A) Any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

- (1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and
- (2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

From: Bradley Cavallo

Sent: Friday, September 12, 2014 4:35 PM

To: Watts, John (Feinstein)

CC: T Birmingham; Roger K Patterson; Brenda W Burman; Bernhardt, David L.; Yeung, Felix (Feinstein)

Subject: Re: Can we do a call later today or over the weekend to discuss the salmon language?

Attachments: Fish_Predation_Final_Report_9-30-13.pdf; Untitled attachment 08887.htm; NAJFM_33_216-229.pdf; Untitled attachment 08890.htm; Hankin_et_al_review_vamp_panel_report_final_051110.pdf; Untitled attachment 08893.htm

Hi John. Brenda indicated that your were looking for a summary of recent juvenile salmon survival data. Below is what I was able to put together. If there is more time, I can flesh this out a bit more- let me know.

The references cited are attached.

-Brad

Tagging studies conducted since 2000 show through-Delta survival of San Joaquin basin juvenile Chinook has been poor to abysmal (30% to 2%) (Hankin et al. 2010; Buchanan et al. 2013)

For the Sacramento Basin, survival for tagged fish released upstream and reaching to the Golden Gate Bridge have ranged from 3-16% for all runs in studies using either VEMCO or JSATS tags (2007-2011 for fall run, 2012 for spring and fall runs, and 2013 for winter run (Grossman et al. 2013).

EFFECTS OF FISH PREDATION ON SALMONIDS IN THE SACRAMENTO RIVER – SAN
JOAQUIN DELTA AND ASSOCIATED ECOSYSTEMS

GARY D. GROSSMAN, TIMOTHY ESSINGTON, BRETT JOHNSON, JESSICA MILLER,
NANCY E. MONSEN, AND TODD N. PEARSONS

25 SEPTEMBER 2013

EXECUTIVE SUMMARY

We examined a set of 24 papers and observed presentations by researchers to assess the status of information and potentially establish conclusions regarding the importance of fish predation on salmonid populations in the Delta. Available data and analyses have generated valuable information regarding aspects of the predation process in the Delta but do not provide unambiguous and comprehensive estimates of fish predation rates on juvenile salmon or steelhead nor on population-level effects for these species in the Delta. Recent survival studies are based on acoustic tagging of larger hatchery-raised fish from ~95 to >250 mm FL. Although it is assumed that much of the short-term (<30 d) mortality experienced by these fish is likely due to predation, there are few data establishing this relationship. Juvenile salmon are clearly consumed by fish predators and several studies indicate that the population of predators is large enough to effectively consume all juvenile salmon production. However, given extensive flow modification, altered habitat conditions, native and non-native fish and avian predators, temperature and dissolved oxygen limitations, and overall reduction in historical salmon population size, it is not clear what proportion of juvenile mortality can be directly attributed to fish predation. Fish predation may serve as the proximate mechanism of mortality in a large proportion of the population but the ultimate causes of mortality and declines in productivity are less clear. For example, stress caused by harsh environmental conditions or toxicants will render fish more susceptible to all sources of mortality including predation, disease or physiological stress. We also recommend a variety of structural changes to the manner in which research is performed in the Delta. These include creation of a system-wide GIS including layers for available physical, chemical and biological data including hatchery releases. Next, we recommend that methods be standardized for important research topics such as fish abundance estimates, tagging studies, dietary studies, etc. This process has recently been conducted by the National Ecological Observatory Network and their work could serve as a starting point for a similar process in the Delta. Our research indicated that it was difficult to locate information for many topics and we recommend creation of a searchable data repository for research conducted in the Delta, similar to that used by NSF Long-Term Ecological Research sites. Finally, we suggest a series of research topics that must be addressed to reach scientifically valid conclusions regarding the role of fish predation on salmonid populations in the Delta and provide examples of potential study designs from the literature.

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PANEL CHARGE*

The Expert Panel was charged with evaluating a series of pre-assigned papers on predation in the San Francisco Bay Delta Ecosystem (Appendix 1) and participating in a workshop conducted 22-24 July 2013 in which the panel also heard research presentations (Appendix 2) and public input. The panel was charged with answering the questions below, and these answers will be presented in separate sections or combined with other charges where appropriate. In addition, we have included a Background section which describes the ecological context of the Bay Delta system with respect to the salmonid-fish predator interaction. Although an extensive literature review on the general topic of how predation affects salmonid survival in the Delta was not part of our charge, we have included and commented on additional papers where appropriate to the subject at hand.

1. What is the ecological context of predation by fish on Central Valley salmonids, and what can be learned from other systems that could inform our understanding of predation on anadromous salmonids?
2. What do the available data and analyses tell us about the rates and population level effects of fish predation on Central Valley salmonids?
 - A. Are there appropriate methods for estimation of predation rates and population level effects from the existing data?
 - B. What biological and physical factors are likely to affect the impacts of predation on salmonids? Have these factors changed over time, and do they vary between the major basins (i.e., San Joaquin and Sacramento River)? Do these factors vary among the major reaches of the system (e.g., spawning areas, riverine reaches, delta, bay, ocean)?
 - C. What is understood about the interactions among major factors influencing predation on salmonids (e.g., interactions among predators, hydrology and temperature, etc.)?

3. What related science is generally agreed upon; what are the key disagreements or uncertainties?
4. What future work (e.g., feasible scientific studies, modeling, and pilot experiments) should be done to address key knowledge gaps by testing clearly stated hypotheses to substantially reduce scientific uncertainties that lead to disagreement? Please provide guidance on appropriate study design and methods for estimating predation rates and population level effects.

*Because the charge questions deal with interwoven issues they will be addressed where most relevant rather than in the order presented in the charge.

SECTION 1

1A The Ecological Context of Predation -- the Delta Environment: physical factors

affecting predation by fishes on salmonids

1B What can be learned from other systems?

1A The Ecological Context of Predation -- the Delta Environment: physical factors

affecting predation by fishes on salmonids

The Sacramento River – San Joaquin Delta is the largest estuarine system on the west coast of the Americas. By recent definitions (areas less than 7.6 m in elevation, Whipple et al. 2012), the Delta comprises an area of 3238 km² and is both one of the most productive agricultural regions in the United States as well as being one of the most important western habitats for wildlife, fishes and invertebrates. The Delta has high biodiversity, with more than 700 species recorded from this unique habitat. This system also provides essential rearing habitat for imperiled Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*) and also serves as a transit zone for these species as they emigrate to their adult habitat in the Pacific Ocean. Both the rearing and migratory functions of the Delta have been strongly affected by a long history of water withdrawals, land conversion, and introductions of invasive species. Historical anthropogenic impacts and ecology of the Delta have recently been reviewed by Whipple et al. (2012), so we will not review that information extensively.

The Delta is fed primarily by the Sacramento and San Joaquin Rivers. In general, the Sacramento River has better water quality than the San Joaquin; the latter is more strongly affected by municipal and water export processes. Although both rivers experience withdrawals and upstream inputs from agricultural uses, the Sacramento River has lower specific conductance, alkalinity, nitrate concentration, dissolved organic carbon, and orthophosphate concentrations (Whipple et al. 2012). In addition, the concentration of selenium is an order of magnitude lower in the Sacramento River than the San Joaquin (Monsen et. al 2007). The Sacramento River, does, however, have higher mercury concentrations than the San Joaquin as a result of historic mining operations (Luoma et al. 2008). The relative contributions of Sacramento River and San Joaquin waters to the Delta depend on multiple factors including: rainfall, river volumes,

pumping plant export rates, gate operations, and seasonal barrier placement in the south Delta (Monsen et al. 2007). Because the Delta has a complex geography and hydrology that creates significant spatial heterogeneity in ecological processes such as fish predation rates, we have divided the system into six regions, each with unique physical characteristics. Figure 1 depicts the spatial locations of the different regions.

Region 1: North Delta

The North Delta region includes the main stem Sacramento River, Sacramento River Deep Water Ship Channel, Steamboat, Sutter, and Miner Sloughs. Fresh water is delivered from the Sacramento River and exits through the Cache Slough Complex (Region 2) and the Mokelumne River Region (Region 3). The majority of inflow to the Delta comes from the Sacramento River (Healey et al. 2008) and this is a major migration pathway for Chinook salmon both as adults moving upriver to spawn and for juveniles moving downstream to reach the ocean (Perry et al. 2013). Two significant hydrologic features within this region are the Sacramento River connections at the Delta Cross Channel (DCC) and at Georgiana Slough. The DCC was built to divert Sacramento River water into the Central Delta (Region 4) via the Mokelumne region (Region 3) to prevent salinity intrusion in the Central (Region 4) and South Delta (Region 5). The gates of the DCC are normally open except when migratory salmonids are in the region in accordance to State Water Resources Control Board Decision 1641. Georgiana Slough is a second connecting channel that diverts Sacramento River water to the Central Delta (Region 4). Despite generally strong riverine flow, a tidal signal is present throughout Region 1. On the Sacramento River itself, the transition between unidirectional flow and reverse flows occurs around Georgiana Slough and the DCC. The exact location of this transition is a function of flow in the Sacramento River as well as DCC gate operations (Monsen 2001). There are no open, shallow water habitats in this region and channels are typically wide (50-200 m), armored with rip-rap, and leveed. The levees were originally built for flood control for the City of Sacramento and small, riverside farming communities.

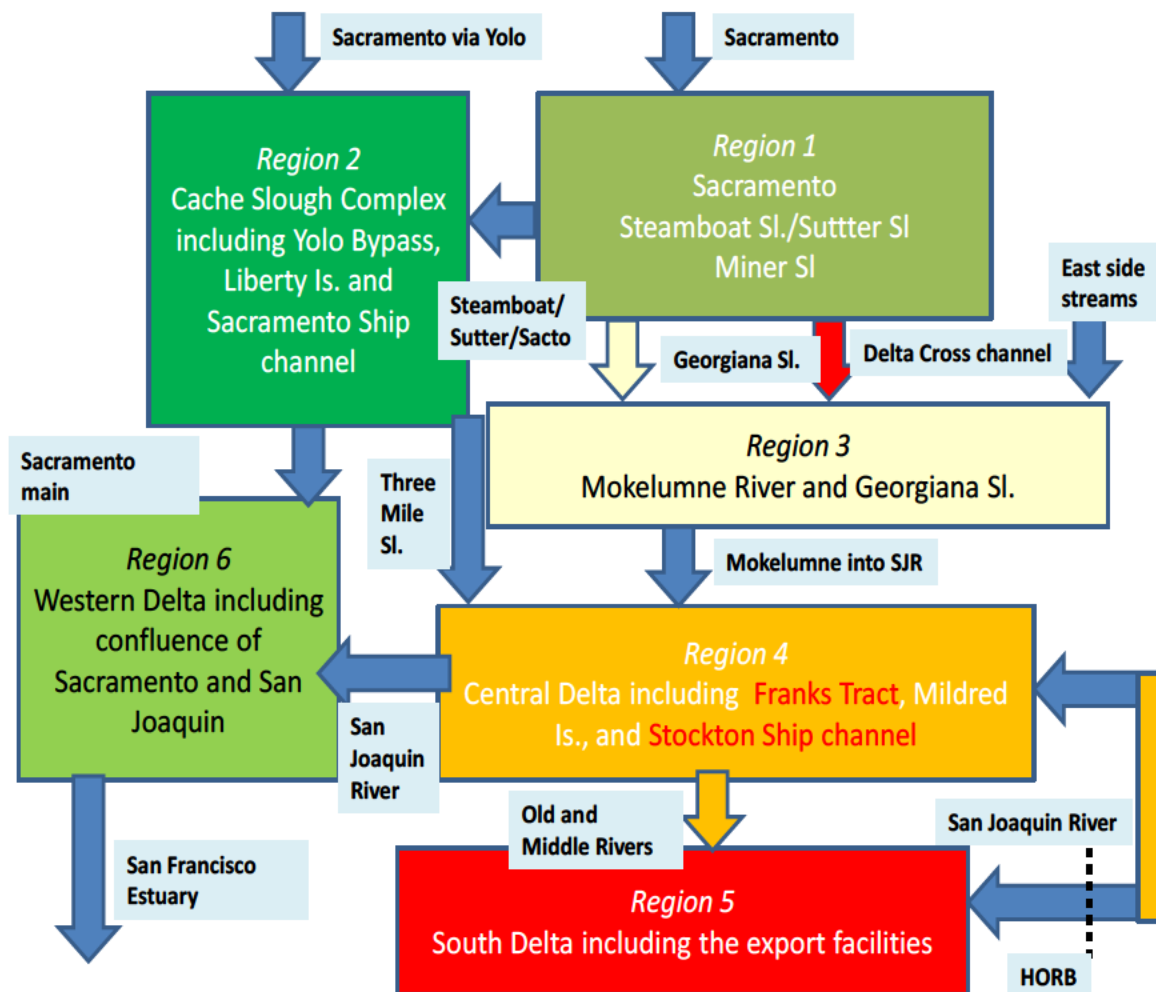


Figure 1: The six hydrologic/predation regions of the Sacramento – San Joaquin Delta. Based on the literature we synthesized hydrologic units (regions) and they hypothesized predation risk from low (green) to moderate (yellow) to high (red).

Water quality in Region 1 is high when compared to the Delta as a whole. Water quality regulations keep salinity in the region well below 2 ppt throughout the year, with salinities at Freeport typically around 0 (0.1 ppt). Nonetheless, the Sacramento River at Freeport contributes the majority of sediment to the Delta system. Typically, suspended sediment concentration (SSC) is in the range of 10-50 mg/L, but can exceed 200 mg/L during wintertime high flow events. Sediment concentrations in the Sacramento River have decreased by half from 1957-

2001 and total suspended solids have decreased 50% from 1975-1995 (Schoellhamer et al. 2013).

Region 2: Cache Slough Complex

Region 2 includes the Cache Slough complex and surrounding areas (i.e., Liberty Island, Yolo Bypass and the Sacramento River Ship channel). Cache Slough connects to the Western Delta (Region 6) via the main stem Sacramento River. To the south, Three Mile Slough also connects the region to the Central Delta (Region 4). This region derives its water from the Sacramento River via either the North Delta (Region 1) or in the winter from the Yolo Bypass. The Cache Slough region is isolated from the remainder of the Delta and is a higher quality habitat for native fishes. (Larry Brown, presentation). The main shallow water habitats in Region 2 are Liberty Island and Holland Tract. Liberty Island, formally agricultural land flooded in the mid-1990's, is the focus of several research projects including BREACH III (http://www.science.calwater.ca.gov/publications/sci_news_0410_liberty.html). Region 2 shares generally higher water quality characteristics with Region 1 and the Cache Slough region is considered to have better water quality than the remainder of the Delta. Water enters the region via Yolo Bypass in the winter, and is the second largest source of sediment for the Delta. The open-water habitats do not have large concentrations of submerged aquatic vegetation.

Region 3: Mokelumne River and Georgiana Slough

This region is composed of Georgiana Slough and the North and South Mokelumne rivers. The Sacramento River is the primary water source in this region, via diversions through Georgiana Slough and the DCC. The Cosumnes and Mokelumne Rivers also contribute water to this region but the volumes are substantially lower than those from the Sacramento River. The channel landscape in Region 3 is mostly rip-rapped levees. Channel widths range from 50-150 m wide with some dead-end sloughs connecting to the South Mokelumne River on the eastern side of the region. There are no significant shallow water habitats in this region. Region 3 is tidally influenced throughout. Region 3 has a very light suspended sediment load because little sediment is transferred from the Sacramento River (Region #1) via the DCC. In addition, the Cosumnes and Mokelumne Rivers only contribute about 3% of the overall sediment discharge to the Delta (Schoellhamer et al. 2013).

Region 4: Central Delta

The Central Delta consists of the San Joaquin River between Three Mile Slough and Stockton, Old and Middle rivers, and the two primary open-water regions of the Delta, Franks Tract and Mildred Island (Lucas et al. 2002). Region 4 receives water from the Mokelumne (Region 3), and the Cache Slough complex via Three Mile Slough (Region 2). This region is connected to the Western Delta via the San Joaquin River with connections from Big Break and False River (Franks Tract). Because of export operations, the tidally-averaged flow in Old and Middle rivers is upstream towards the South Delta (Region 5). Water flows within the Central Delta region are a function of Sacramento River and San Joaquin River flows, seasonal barrier placement in the South Delta, and water export rates. Monsen et al. (2007) provides a thorough description of how these conditions affect water inflow and outflow in Region 4. In general, the Old and Middle Rivers are fed by Sacramento River water when regional water barriers are open and export pumps in operation. If the Head of Old River Barrier (HORB) is in place, the Middle River will likely contain San Joaquin River water. Both Franks Tract and Mildred Island were agricultural land prior to levee failure and inundation. In both cases, the islands have remained flooded and represent extensive open-water shallow habitats connected to adjacent channels via levee breaks. The eastern levee of Franks Tract has eroded so there is a direct connection to the Old River.

There are significant water quality issues in Region 4 including sediment inputs, turbidity, dissolved oxygen and salinity. Region 4 receives little sediment from either the Sacramento River or San Joaquin Rivers. Water quality issues in Franks Tract are a function of submerged aquatic vegetation (Underwood et al. 2006) which increases significantly during summer months. The presence of large amounts of submerged aquatic vegetation (SAV) creates a multifaceted feedback loop involving hydrodynamics and water clarity, because SAV: 1) reduces wave action via attenuation, 2) reduces flow via increasing drag in the water column, 3) reduces vertical stress in the water column, and consequently increases sediment deposition and decreasing turbidity. Not only does SAV decrease turbidity locally, but when water that has been in the SAV-laden Franks Tract mixes with water in the adjacent channels via tidal exchange, turbidity also decreases in these channels because of dilution with low turbidity water (Schoellhamer et al. 2013). The Stockton Ship Channel historically has been a location of low

dissolved oxygen. Aerators were installed in the center of the San Joaquin River as a solution to this water quality problem. The HORB also facilitates increased dissolved oxygen levels via increasing freshwater flows in this tidal region (Monsen et al. 2007).

Region 5: South Delta

The South Delta includes the San Joaquin River from Stockton to Vernalis, Old and Middle Rivers, the State Water Project export facilities including Clifton Court Forebay and the Central Valley Project. Clifton Court Forebay is the only open-water, shallow habitat in this region. The South Delta is connected to the Central Delta (Region 4) and the San Joaquin River enters the eastern side of the region by way of the HORB. Region 5 has complex flows affected by both natural and water management activities. The seasonal temporary barriers (Middle River, Old River and Grant Line Canal), Clifton Court Forebay radial gate operations, and water export pumps control circulation and mixing. When seasonal barriers are inactive, San Joaquin River water travels west towards the export facilities and north towards Stockton. In extreme low flow conditions, the San Joaquin River between Old River and Stockton may become tidal with reversed flows (Burau et al. 2000). When the HORB is active, San Joaquin River water is directed north towards Stockton. The three seasonal barriers (Old River at Tracy, Middle River, and Grant Line Canal) maintain water levels for agricultural diversions within Region 5 during the summer and fall dry season. These barriers effectively isolate the South Delta region, creating a temporary reservoir consisting of the Old, Middle and Grant Line channels. The activities of the export facilities direct tidal flows in both Old and Middle Rivers upstream towards their intake structures. The circulation patterns of Clifton Court Forebay and the export facilities were recently modeled by MacWilliams and Gross (2013). The circulation patterns in CCFB will be discussed further in the future work section.

Water quality in Region 5 is regulated to conform to drinking and agricultural water quality standards. Because the primary water source is the San Joaquin River, salinities frequently are higher in this region than in the Regions 1-3 (Monsen et al. 2007). There also are significant agricultural water returns, which are high in both salt and dissolved organic carbon. The San Joaquin River provides about 20 percent of the sediment to the Delta. This sediment remains in the San Joaquin Channel by Stockton rather than moving into the South Delta at the head of Old

River. The sediment signal from the San Joaquin attenuates more rapidly than the Sacramento River signal and is almost completely gone at Stockton (Schoellhamer et al. 2013).

Region #6: Western Delta

The Western Delta includes the confluence of the Sacramento and San Joaquin Rivers. Water comes from the main Sacramento River (Region 2) and San Joaquin (Region 4) rivers and is also connected to San Francisco Estuary. This is a highly energetic tidal region and represents the transition zone from freshwater to estuarine ecosystem. An important physical marker, X2 (2 ppt salinity at the bottom of the water column) is often found in the region in the late summer and fall. The Sacramento River at the confluence often contains high suspended sediment concentrations whereas the San Joaquin River has very low SSC (Schoellhamer et al. 2013).

1B What can be learned from other systems?

What related science is generally agreed upon and where do uncertainties lie?

How do major factors influencing predation on salmonids interact?

We have briefly reviewed the literature on: 1) population-level effects, 2) salmonid ecology and food web processes and 3) predator removal studies to assess what is generally agreed upon by biologists and where uncertainties remain. In addition, we address interactions among major factors affecting fish predation on salmonid prey.

What Are Population-Level effects and How Can They Be Detected

The effects of predation on a population may be determined at varying levels of ecological realism ranging from simple estimates (total number of prey consumed) to more comprehensive measures (annual percent reduction in reproductive adults due to predation). When reasonable accuracy is necessary, even simple approaches present substantial logistical difficulties in field settings. For example, population-level parameters such as abundance, survivorship, or production may be estimated at varying levels of spatial, temporal or population complexity. Beginning simply, one could determine a change in a single demographic parameter such as juvenile abundance at one location, for example, Chipps Island. Increasing in complexity, an

investigator might attempt to determine cumulative survivorship to a particular life stage, such as time of marine entry. Scaling up in complexity a researcher could estimate cumulative survivorship across all life-history stages of a cohort at a single location or time. The final level of complexity involves quantifying cohort-specific survivorship at multiple spatial scales over ecologically significant time spans (decades) and documents long-term patterns of population variation and ultimately persistence and extinction risk.

Nonetheless quantifying a population-level effect, such as a long-term decline in juvenile survivorship, does not necessarily identify the mechanism behind the change. Indeed, identification of the mechanism(s) producing variations in population-level phenomena requires significant additional work ranging from low (correlation analysis, results are consistent with hypothesis X) to high (experimentation results only are consistent with hypothesis X) levels of inferential power. In this specific case where estimates of the effects of fish predation on salmonid populations are desired, we would also require: 1) fishery-independent estimates of predator abundance and variation with reasonable precision and accuracy, and 2) robust estimates of overall prey consumption by fish predators (numerical and proportional estimates of the total prey population consumed) or for a particular life stage of interest (i.e. juvenile emigrants). Although we have reduced the data needs for identification of the effects of fish predation down to two steps, there are multiple studies required in each step to achieve estimates with high accuracy and precision. For example, to quantify step two, data will be required for functional and numerical responses of fish predators coupled with annual estimates of prey abundance and productivity. Although this will produce an estimate of mortality contributed by fish predation, the final estimate must be compared to total mortality to quantify whether or not fish predation is a “significant” contributor to total mortality. Indeed, mortality from fish predation may be small compared to mortality imposed by impingement at water extraction facilities, or disease. Finally, predation may be a compensatory process whereby a reduction in fish predation is compensated for by an increase in avian predation. Consequently, it is not safe to assume that demonstrating a fish predation effect at the population level and undertaking management options to reduce this effect, will definitely result in subsequent increases in adult salmonids.

A central tenet of fisheries biology is that most population regulation in marine fishes occurs in a few critical life history stages (Cushing 1996; Houde 1989). Population regulation may be intrinsic (density-dependent responses) or extrinsic (density-independent environmental variation) or more commonly, a function of both processes. In the present context, we need to know the life history stages that primarily are responsible for observed variation in juvenile-to-adult ratios, and the relative extent to which improvements in emigration survivorship will translate into population level effects (e.g. population growth rate). Also, if density dependence is present in the adult phase of salmonid life histories then this may counteract the benefits of improved survivorship of emigrants (Kimmerer, et al. 2000). If population control is driven by density-independent processes acting on non-juvenile life history stages (egg/alevin mortality due to flooding), the fluctuations in population size produced by these interactions will have to be included in any management strategy that involves predator reduction.

The Basics of Predation

Fundamentally, the predation process can be broken down into several components (Fig. 2) including search and encounter rates, pursuit and attack rates, capture and handling, and ultimately consumption. These components are all affected by factors such as prey abundance, spatial and temporal overlap of prey, habitat complexity, turbidity, and behavioral, physiological, and morphological adaptation which facilitate (predator) or inhibit (prey) the predation process. Although many fish predators are opportunistic feeders (Gerking 1994), differences in prey characteristics (e.g., morphology, behavior and energy content) also affect prey choice (Gill 2003). All else being equal, foraging theory predicts that predators should select prey that maximize their net energy gain (Wootton 1990; Grossman 2013). In the case of juvenile salmonid prey in the Delta, predators may display positive selectivity for these species because they are energy-rich (Hartman and Brandt 1995), are easily handled (i.e., soft-rayed and fusiform) and potentially naïve to invasive predators (Kuehne and Olden 2012). This naiveté of salmonids to invasive predators occurs in other regions where lake trout and northern pike feed disproportionately on salmonids despite apparently higher abundance of native catostomid prey (Johnson and Martinez 2000; Johnson et al. 2002; Lepak et al. 2012a).

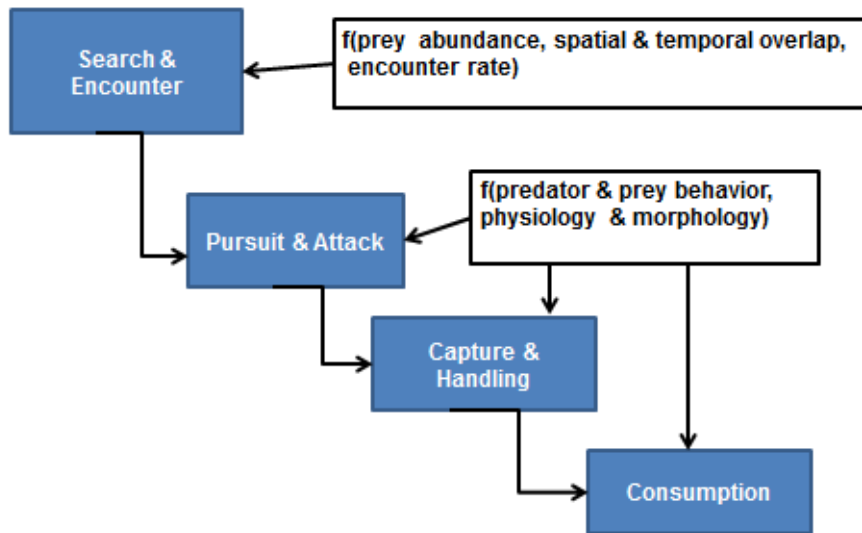


Fig. 2 A schematic depicting the components of the predation process.

Given that the majority of fish predators in the Delta are invasives, naïve salmonids may have a reduced ability to avoid predation. The predation process also is affected by temporal and spatial factors and behavioral data indicate that juvenile salmonids generally only spend weeks to months in the Delta co-occurring with fish predators. Nonetheless, significant predation effects on salmonid populations can occur if predation is localized but intense (Rieman et al. 1991; Wahl et al. 2007). This could occur for salmonids emigrating through the Delta especially in known “hot spots”.

Ecological Uncertainty and Predator Effects in Aquatic Systems

Changes in predator abundance produced via removal, augmentation or invasion frequently produce unintended consequences (Polis and Strong 1996). The most common unanticipated shifts are indirect food web effects (Carpenter 1988) such as shifts from pelagic to benthic food webs or vice versa. Although not a predator, a local example of such a food web shift was produced by the small overbite clam *Corbula amurensis* within the San Francisco Bay ecosystem (Feyrer et al. 2003). When food webs are highly interconnected, predicting the consequence of a perturbation to even a single link in food web is nearly impossible (Yodzis 1998, 2000).

Nonetheless, prediction capacity is simplest when: 1) predators are specialists, 2) there is little omnivory, and 3) food webs are mostly linear (i.e., food chains), with little interspecific competition and few shared predators (Polis and Holt 1992, Strong 1992, Polis and Strong 1996, Borer, et al. 2005). Unfortunately these conditions describe neither the Delta food web nor the fish predator-salmonid prey interactions in the region. A second set of unintended consequences may arise via trait-mediated interactions, in which behavioral responses to predators outweigh direct consumptive effects (Preisser, et al. 2005, Schmitz, et al. 2004). In some cases the effects of a predator on prey growth and survival are much larger than that predicted from consumption rates alone. For example, cyprinid populations were nearly extirpated in northern Wisconsin lakes after introduction of largemouth bass, because cyprinids shifted to pelagic microhabitats with stressful high temperatures, low food abundance, and significant avian predation risk (Carpenter and Kitchell 1993). In other cases, behavioral avoidance of multiple predators may produce multiplicative effects, where the effect of one predator enhances the efficiency of a second predator (Hixon and Carr 1997).

Predicting the consequences of predator removal also requires insights into the functional and numerical responses of predators to prey. The functional response describes the per-capita feeding rate of predators, usually as a function of prey density. When the functional response becomes asymptotic as prey density increases (e.g. Type II functional response), the fraction of prey killed by predators increases as prey density declines, inducing compensatory mortality and strong population-level effects. When per-capita predator feeding rates are affected by predator abundance (e.g., interference competition) or when only a fraction of prey are vulnerable to predators, then fish predation rates may be relatively insensitive to fluctuations in predator abundance (numerical response, DeAngelis, et al. 1975, Ahrens, et al. 2012). For example, in the Baltic Sea, changes in juvenile herring abundance are not strongly related to changes in the abundance of their predator Atlantic cod (*Gadus morhua*) (Essington and Hansson 2004).

Much research demonstrates that predation is context dependent—meaning that the magnitude and importance of predation depends on many “local” factors. For example the presence/absence of structure and alternative prey in the environment typically have profound effects on fish predation rates (Mittelbach and Persson 1998). In addition predator: prey size

ratios commonly influence predation rates (Ebenman and Persson 1988; Mittelbach and Persson 1998; Scharf, et al. 2000). Most predators are gape limited, and for salmonids this means that larger juvenile salmonids are exposed to fewer predators than smaller individuals. Hence, factors that affect the growth rates of prey such as water temperature, habitat quality, and food availability, also will affect their vulnerability to predators. Because predation only occurs when predator and prey overlap in space and time, large-scale processes (land use, hydro-climatological regimes, etc.) and innate behaviors (e.g., migration, territoriality) also may affect prey distributions and hence, predation rates by fish predators. Predator foraging tactics also may change depending on prey availability, either enhancing or diminishing vulnerability of emigrating salmonids to predators. Consequently fish predator-prey interactions should not be viewed as static. Moreover, fish predation on salmonids in the Delta is specific to one particular life history stage. This and the context dependency of these predator-prey relationships, given the variable Delta environment, undoubtedly will make the population-level effects of fish predation on salmonid survivorship/adult returns challenging to detect.

Habitat Loss & Invasive Species

The primary factors responsible for the imperilment of native species in freshwater systems are anthropogenic habitat change and invasive species (Dudgeon et al. 2006). In the Bay-Delta ecosystem, habitat change has followed intensive development of water resources for human use, including dams, levees, channelization and redistribution of flows (Delta Stewardship Council 2013). The Bay-Delta ecosystem is also one of the most invaded estuaries in the world with more invasive than native species (Cohen and Carlton 1998). Habitat change and invasive species interact, because habitat change, especially degradation, may favor invasives and thus intensify interspecific competition and predation (Meffe and Carroll 1994; Moyle and Light 1996; Bunn and Arthington 2002). Focusing on habitat change or invasive species alone is not adequate for recovery of native salmonids in the Bay-Delta. Rather, both of these ecosystem stressors must be addressed in a coordinated fashion. The importance of a natural flow regime (Grossman et al 1982; Poff et al. 1997) to the native flora and fauna, function, and resilience of lotic ecosystems is widely accepted. Restoration of natural hydrologic regimes is a large component of many regulated river rehabilitation programs (Richter and Thomas 2007) including the Colorado River Basin (Muth et al. 2000; McAda 2003; USBR 2011). However, in

some cases restoration of natural hydrologic cycles alone is unlikely to benefit native fishes without concurrent management of invasives, especially predators (Tyus and Saunders 2000; Propst et al. 2008). Invasive predator management is now occurring in conjunction with flow restoration in both the Upper and Lower basins (Mueller 2005; Coggins et al. 2011) of the Colorado River. Salmonid conservation efforts in the Delta cannot focus on habitat restoration alone because 1) the physical structure of the system is highly constrained by domestic and agricultural water demands, and 2) invasive species, including predators, will continue to pose a threat to salmonid persistence. Nor is predator control likely to be effective on a broad scale without attention to the habitat conditions that make invasive predators successful, as the following case histories demonstrate.

Predator Control Case Studies

Control of undesired and invasive fishes is a common fishery management strategy (Kolar et al. 2010). Often, control of predatory fishes is proposed when more direct measures of remediating impacts to prey populations are economically or politically impractical (Beamesderfer 2000). For example, the proximate cause of juvenile mortality could be predation by fishes, but the ultimate cause could be water management schemes that degrade habitat and add stress to migrating juveniles, increasing their vulnerability to predators. Currently, large-scale predator removal programs are underway across North America to aid in the recovery of native and sport fish species, including salmonids. The following case studies illustrate the breadth of approaches and their efficacy to control predatory fishes.

Predator Control and Salmonid Species

Predatory fish control to benefit salmonid populations has been undertaken in both the eastern and western United States. One of the most widespread and effective predator control programs has been directed at sea lamprey *Petromyzon marinus* in the Great Lakes (Smith and Tibbles 1980; Larson et al. 2003). Application of the highly selective lampricide TFM (3-trifluoromethyl-4-nitrophenol) in rearing streams has been effective at reducing sea lamprey populations by 90% in most areas (GLFC 2013) at a cost of about \$16M/yr (MDNR 2013). Lamprey control likely has been achieved because a vulnerable stage (ammocoetes) occupies a restricted habitat in which toxicant application is logistically feasible and effective. However,

these conditions are not present in most predator removal situations. The Northern Pikeminnow (*Ptychocheilus oregonensis*) Sport-Reward Program began in 1991 in the Columbia River and is sponsored by Bonneville Power Administration. The program seeks to maintain 10-20% exploitation rate on northern pikeminnow throughout the Columbia River by paying anglers \$4-\$8 to harvest fish > 228 mm TL (Porter 2010). The program removed over 2.2 million fish during 1998-2009 and is believed to have reduced predation on juvenile salmonids, but positive effects on salmonid populations have been difficult to detect (Carey et al. 2012). Cumulative program cost in 2010 was \$78.2 million (Porter 2010) but the reward system is still probably more cost-effective than if agencies performed the removal themselves (Carey et al. 2012). Lake trout have been widely introduced for sport fishing in western US lakes and reservoirs. In some systems these fish threaten native and introduced salmonid populations (Dux et al. 2011). Commercial fishing and anglers appear to have reduced lake trout abundance and allowed for kokanee recovery at Lake Pend Oreille, ID (Hansen et al. 2010). Angler incentives do not appear to have been effective at Flathead Lake, MT (BIA 2012), and although commercial-scale netting has removed over 450,000 lake trout at Yellowstone Lake, WY/MT the population continues to threaten native cutthroat trout (Syslo et al. 2011).

Predator Control and Non-salmonid Species

As part of the Upper Colorado River Endangered Fish Recovery Plan (U. S Fish and Wildlife Service 2012) invasive channel catfish, northern pike, smallmouth bass and others are being removed from critical habitat for ESA listed cyprinids and catostomids (Tyus and Sauders 2000; Johnson et al. 2008). Invasive fish control in the Upper Colorado River Basin is costing over \$1 million annually (Mueller 2005). Demonstrating native fish response to invasive fish removal has been complicated by highly variable environmental conditions which affect predators and prey differentially. However, the available literature demonstrates that even in isolated reaches where removal efforts were intense, the positive responses of native fishes have been few (Bestgen et al. 2007; Skorupski et al. 2012).

In general, control of fish predators has not produced strong positive, population-level responses in prey species, be they small cyprinids or juvenile salmonids. These attempts are difficult logistically and costly, and the lack of success illustrates the challenges inherent in functionally

eliminating wild fish populations in systems with complex dynamics. Eradication generally is unlikely, except in small, isolated systems where reinvasion can be prevented (Kolar et al. 2010). When eradication is impossible, suppression can sometimes be effective at reducing impacts to prey fish populations. However, removal effort must be intensive and sustained (Beamesderfer 2000), making suppression very expensive.

SECTION 2 – WHAT DO AVAILABLE DATA TELL US

2A – A Short Review of Available Data

2B – Appropriate Methods and Extant Data

Biological and physical factors affecting salmonid predation

Interactions among major factors

2C – Varying factors: Predation Hot Spots

2A – A Short Review of Available Data

The fish predator assemblage of the Delta is dominated by invasive predators, with the exception of the Sacramento pikeminnow (Table 1) (Brown & Michniuk 2007; Nobriga & Feyrer 2007, National Research Council 2010; Cavallo et al. 2012, National Research Council 2012, Larry Brown presentation). Abundance or relative abundance (e.g., catch-per-unit-effort) data exist for some predators at some locations and times, however fishery-independent population estimates of predator population sizes generally are lacking. Nonetheless, several predators such as striped bass and largemouth bass, appear to be abundant, based on both opportunistic (i.e., salvage data from water control projects) and targeted surveys (i.e., Nobriga et al. 2002; CDFW mid-water trawl surveys). However, there is little information on the spatial distribution and size/age structures of fish predator populations, or how these characteristics vary over time. This greatly limited the Panel's ability to make quantitative inferences regarding the effects of fish predation on salmonids at the population level. Furthermore, populations of some fish predators (e.g., striped bass) have declined over time, but this decline has not coincided with concomitant increases in salmonid populations and there is uncertainty regarding variation in the abundance of sub-adult striped bass (Loboschewsky et al. 2012). With the exception of striped bass, there is little extant population-level information for fish predators including largemouth bass (e.g., Nobriga et al. 2002; Louise Conrad presentation) and Sacramento pikeminnow (Tucker et al.

1998) whereas there is even less information for smallmouth bass and white and channel catfish (Table 1). It is important to note that, in addition to predation by native and non-native fishes, there has been extensive modification of the hydrology, loss of tidal freshwater wetlands, increases in non-native submerged aquatic vegetation such as *Egeria densa*, and other effects of human population growth within the Delta (Brown & Michniuk 2007; National Research Council 2010, 2012), which also undoubtedly influence the survival of salmonids in the Delta.

Fish predation on juvenile salmon and steelhead obviously occurs within the Central Valley (Table 1, Stevens 1963, 1966; Thomas 1967; Tucker et al. 1998) and it is clear that all of the predators listed in Table 1 likely have the capacity to prey upon both healthy and stressed juvenile salmonids. Nonetheless significant additional information will be required to translate what little dietary data exist into robust estimates of fish predation rates or population-level effects for salmonids. The fish predator with the most complete data base is the striped bass, which also has received much attention because of the listing of several Central Valley Chinook salmon populations under the Endangered Species Act. The development of recovery plans for these populations requires the identification of mortality mechanisms and the identification of factors that will increase survival and population growth rates. Modeling studies indicate striped bass predation on salmonids has the potential to be high (Nobriga & Feyrer 2007; Loboschefskey et al. 2012); however, limited validation of modeling results has occurred because of a lack of required empirical data. For example, long-term abundance and dietary data for striped bass typically quantify abundance and diet of age classes 0-2 whereas significant predation likely occurs by adult fish. Even so, population data show conflicting results and some studies show adult striped bass (age-3+) declining in abundance since the 1960's (Lindley & Mohr 2003), whereas other studies show a long-term decline in age-0 fish, but a relatively stable adult population of approximately 1,000,000 since 1980 (Sommer et al 2011). The causal factors driving divergent trends in age-0 and adult striped bass abundance are unclear. In part, they may be due to a shift towards shallower habitats by age-0 fish, thereby reducing catches in the mid-water trawl survey (Sommer et al. 2011) which has used permanent sampling stations. Loboschefskey et al. (2012) provide additional evidence that age-0 abundance is likely underestimated and suggest that sub-adult abundance has increased since 1981, ranging from 3 to >12 million individuals. Overall, there is substantial uncertainty regarding abundance trends

for juvenile and adult striped bass, and these uncertainties will have to be resolved before these data can be used with confidence to estimate impact of striped bass predation on salmonids.

Although it is evident that striped bass consume juvenile salmonids (Stevens 1963, 1966; Thomas 1967; Tucker et al. 1998), the population-level impacts of that predation are less clear. Previous analyses attempted to estimate the linkage between striped bass abundance and stage-specific survivorship and subsequent population-level effects on salmonid populations (Lindley & Mohr 2003; Hendrix et al. presentation). Both Lindley & Mohr (2003) and Loboschefskey et al. (2012) found that significant proportions of the Delta salmonid population could be consumed by striped bass (approximately 9% of the Central Valley winter-run Chinook salmon for the former assuming a striped bass population of 1,000,000 adults; and 5 to >30 million kg/year for the latter). Although these studies demonstrate the capacity of adult striped bass to essentially consume all salmon juveniles emigrating from the Central Valley (i.e., 30-60 million salmon juveniles at a mean mass of 10-30 g per individual), it is obvious that salmonids have persisted in the presence of striped bass, perhaps because, juvenile salmon are only present in the Delta for relatively restricted time periods. More recently, Hendrix et al. (presentation) evaluated factors related to the survival of Butte Creek spring Chinook salmon and found that spring-run escapement from 1970-2007 was negatively associated with the catch of adult striped bass in two of the top three models. However, Hendrix et al. also determined that the escapement of winter-run Chinook salmon (1967-2008) was only weakly related to striped bass catches (or estimated abundance). The authors suggest that these somewhat contradictory results may be related to the asynchronous emigration of winter-run compared with spring- and fall-run juvenile Chinook salmon. It is possible that synchronous emigration evolved as a “predator swamping” adaptation (Ims 1990; Wrona and Dixon 1999), however, this would not explain the weak relationship between asynchronous winter-run Chinook salmon and striped bass abundance. These contradictory results typify the problems inherent in the existing fish predation data base for the Delta and highlight the need for direct measures of this process.

Table 1. Summary of available information on fish predators that consume juvenile salmonids in Sacramento – San Joaquin Valley waters. Reference numbers are identified below.

Species	Abundance (trend)	Distribution	Age/size structure	Diet
Striped bass <i>Morone saxatilis</i>	1,7,8,11 (↓ age-0 in pelagic surveys, ↑ or stable for sub-adults, ↓ for adults)	8,9	1,7,8,11	4,5,6,7, 8,9
Largemouth bass <i>Micropterus salmoides</i>	2,7,8,11, 12, 13 (↑)	8,9	1,2,3,5	7,8,9, 13
Smallmouth bass <i>Micropterus dolomieu</i>	(?)			7
White catfish <i>Ictalurus catus</i>	(?)			
Channel catfish <i>Ictalurus punctatus</i>	(?)			
Sacramento pikeminnow <i>Ptychocheilus grandis</i>	7,8 (?)		7,8	6,7,8
Hatchery-origin salmonids	↑ (?)			10

¹CDFW Fall Midwater Trawl samples pelagic habitat monthly from September to December at 116 fixed stations throughout the northern region of the estuary. An additional 35 fixed stations sampled from San Francisco Bay through San Pablo and Suisun bays and into the Sacramento–San Joaquin Delta approx. monthly since 1980 using midwater and otter trawls (<http://www.delta.dfg.ca.gov/data/mwt/>).

²Salvage data from the State Water Project and Central Valley Project in the Sacramento-San Joaquin Delta (<http://www.delta.dfg.ca.gov/Data/Salvage/>).

³The CDFW adult striped bass (age 3+) survey during the spring spawning migration (April and May).

⁴Stevens 1963, 1966. Sacramento River. Approximately 600 striped bass diets.

⁵Thomas 1967. Relative comprehensive spatially throughout the year. 4500 striped bass (age 1-3+) diets from 1957-1961.

⁶Tucker et al. 1998. Sacramento River, April 1994-July 1996.

⁷FishBio. 2013. Lower Tuolumne River in 2012.

⁸Nobriga & Feyrer 2007. Decker, Medford, Sherman, Liberty, and Mildred Islands in 2001 & 2003.

⁹Nobriga et al. 2002. Decker, Medford, Sherman, Liberty, and Mildred Islands in 2000 & 2001.

¹⁰Sholes and Hallock 1979

¹¹Cavallo et al. 2013. N. F. Mokelumne River. May 2011

¹²Brown & Michniuk 2007. 1980-83, 2001-2003

¹³Conrad et al., presentation. 2008-2010.

Salmonid Movement and Mortality

Estimates of survivorship on both regional and Delta-wide scales exist, Although it is difficult to calculate system-wide estimates of salmonid survivorship, tagging studies indicate that survivorship of all runs of Sacramento River Chinook salmon (i.e., fall, late-fall, winter, and spring) is variable (Lindley et al. presentation). Previous tagging studies, Perry et al. (2013) found that Chinook salmon have equal survival rates regardless of whether they transited Region1 either through the Sutter/Steamboat/Miner slough route or the main stem Sacramento River. When compared to extant data from the remainder of the Delta, it is clear that transiting the North Delta yields the highest survival rates for salmonids. Extant tagging studies of salmonid movement and mortality from the southern Delta indicate that recent (2008-2011) survivorship of juvenile Chinook salmon (mean size 95-111 mm FL) is low through the southern Delta to Chipps Island (0.02-0.05) and moderate (0.54) for larger steelhead (mean size = 277 mm FL) (Buchanan et al. 2013; Buchanan et al. presentation). These low survival rates occurred across ~90 river kilometers (rkm) though juveniles rarely appear to make a rapid, unidirectional transit through the South Delta. Although not well-integrated into estimates of overall survival from juvenile-to-adulthood, such low survival rates for Chinook salmon are unlikely to maintain populations given observed ocean survival rates (Welch et al. 2008; Scheuerell et al. 2009; Rechisky et al. 2013). Attempts to estimate system-wide survivorship indicate that juvenile Chinook salmon survival to the Golden Gate Bridge ranged from 3-16% for all runs in studies using either VEMCO or JSATS tags (2007-2011 for fall run, 2012 for spring and fall runs, and 2013 for winter run). These rates are quite low; however, they encompass a longer transit distance (~540 rkm) than studies from the southern Delta. Furthermore, estimates of survivorship down the Sacramento River from Battle Creek to Freeport (~365 rkm) are comparable to survivorship from other mainstem systems, such as the upper Columbia River (to the lowest mainstem dam ~460 rkm, 0.56 vs. 0.40-0.60, respectively; Michel 2010; Tuomikoski 2011; Rechisky et al. 2013; Wargo-Rub 2011). Nonetheless, it is difficult to derive conclusions regarding population-level survivorship for salmonids in the Delta because data: 1) are very recent (2010-present) and have not yet been published in peer-reviewed journals, 2) have limited spatial scales, 3) employed differing methodologies, especially tags and tagging procedures, and (4) generally cannot unambiguously tie tag loss or mortality to predation. Because most survivorship data are derived from acoustic tagging studies, it is essential to understand the

biases associated with this technique, including: 1) the difficulty of linking mortality events to predation, 2) stresses imposed by tagging (i.e., handling stress and physiological and behavioral changes induced by the tag itself), and 3) the necessary use of larger, typically hatchery-reared fish to accommodate acoustic tags (Wargo-Rub et al. 2011, Buchanan et al. 2013). All of these potential biases may affect survivorship estimates (Wargo-Rub et al. 2011; Buchanan et al. 2013).

In examining the information presented to the Panel (Appendices 1-2), we did not find a source containing a comprehensive analysis detailing the relationships between present survivorship estimates and environmental and water management data. For example, although some data suggest that survivorship is higher under high flow conditions the mechanism producing this relationship is unknown. Is it due to reduced mortality from predators, dilution of toxicants, lower water temperatures or a combination of all three mechanisms? A comprehensive synthesis of survivorship data encompassing ecologically relevant spatial and temporal scales will be important for understanding patterns of salmonid mortality including that due to fish predation.

2B – Appropriate Methods and Extant Data

Biological and physical factors affecting salmonid predation

Interactions among major factors

Predation rates by fish predators and their concomitant effects on salmonid populations may be estimated in a variety of ways. Here we evaluate the primary ways that predation rates are commonly estimated, describe data requirements, and benefits and limitations of each method. However, as with all scientific endeavors, the first step is to precisely define what is meant by “population-level” effects, especially given that this term may mean different things to basic scientists, regulators and managers. This is a critical step, not only for clarity of results, but also because not all definitions will yield information useful for policy making. For example, population-level effects could be expressed as the per capita effect of a predator on the population growth rate of a prey species, or it could be expressed as the total number of juveniles removed from the prey population. However, these definitions may not directly translate into useful information for managers. Instead, managers may need a more specific definition such as

what level of reduction in fish predation would create a doubling of the adult population. Given that our task is to evaluate the impact of fish predation on salmonids in the Delta, we have considered a population-level effect to be one that results in a change in salmonid: 1) abundance, 2) survivorship, or 3) production.

Statistical, Mathematical and Theoretical Modeling

The detection of predation effects using statistical or mathematical methods may be as simple as univariate correlation analyses between time series of predator and prey to more complex analyses based on population or individual-based modeling that fits parameters describing the effects of predation mortality on survivorship. These approaches may be based on a variety of population end points including salmonid production, survivorship, escapement, or harvest. Examples of the use of modeling to estimate the effects of fish predators on salmonids in the Delta are provided by Lindley and Mohr (2003) and Hendrix and colleagues (the OBAN model). Neither analysis indicated strong effects of striped bass predation on winter-run Chinook salmon survivorship. However, the results of these studies were inconclusive with respect to determination of population level effects for several reasons discussed below.

As with all statistical analyses, the strength of the results depends on the quality of the data used in the analysis. Unfortunately, abundance data for all potential piscine salmonid predators in the Delta are lacking, and therefore results from any statistical analysis will have questionable accuracy (see Future Research Needs). In addition, estimation of Chinook salmon and steelhead abundances are complicated by the presence of both hatchery and wild fish. Chinook salmon and steelhead escapement is extensively monitored (Adams, et al. 2011) but may not be collected in a way to distinguish the relative contributions of wild runs and hatchery fish. A variety of methods are used to estimate the population size of striped bass, however population estimates for other predators such as largemouth bass, catfish species, and Sacramento pikeminnow apparently are not available. Even when population data have been collected they possess limitations with respect to their use to estimate predation pressure. For example, mark-recapture methods are used to estimate the population of stripers age 3+ and older (Loboshefsky, et al. 2012); however, 0+ juvenile abundance is quantified via mid-water trawling (Kimmerer, et al. 2000) and unfortunately, the long-term patterns of the two time series are not similar (Kimmerer,

et al. 2000). Finally, it appears that present modeling efforts are limited to winter-run Chinook salmon rather than extend to other runs of Chinook or steelhead.

Statistical and modeling approaches have inherent limitations in that they approach conclusions regarding causation via correlation (although mechanistic data may be included in models to simulate the predation process) and at best, produce a result that is *consistent* with a given mechanistic hypothesis. Unless alternative mechanisms are explored via the same techniques, the conclusions are always subject to the criticism that some other factor correlated with predator abundance is the true causal mechanism (e.g., predation is just a surrogate for physiological stress). Certainly there is no reason modeling cannot be used to test alternative mechanisms and this should be encouraged as should be the use of sensitivity analyses and model validation using independent data sets. In addition, statistical techniques such as information theoretic (Burnham and Anderson 2002; Grossman et al. 2006) and mixed modeling approaches (Hazelton and Grossman 2009) allow one to estimate the weight of evidence (and relative magnitude of effects) in support of multiple hypothesized causal factors, which is the most realistic approach for processes that undoubtedly are affected by many factors. Finally, modeling and statistical approaches generally assume that the per-capita effect of fish predators is constant through time. However we know that important environmental changes that likely affect predation rates have occurred in the Delta over the last 40 years (e.g. water quality, food web shifts, species invasions and displacement of native prey, increases in invasive submerged aquatic vegetation; Brown and Michniuk 2007), so this assumption likely is unwarranted. Furthermore, changes in environmental factors (e.g., oceanic conditions) or management/hatchery practices outside of the Delta also may limit the power of fish predation analyses using historical data, especially if these factors covary.

Anderson et al. (2005) describe a generalized theoretical approach to estimating predation vulnerability of a prey moving through predator-containing habitats. This method applies concepts from kinetic theory, to identify the key processes that dictate predator-prey encounters at varying temporal and spatial scales. The panel understands that at least some of the salmon life cycle models will use this approach in deriving plausible parameter estimates for emigrating juveniles (Lindley, presentation). We note that this model has not been validated for salmon in

the Sacramento-San Joaquin Delta ecosystem. In conclusion, modeling and statistical approaches have the potential to contribute important insights, mainly through generation of plausible mechanistic hypotheses, to quantifying the effects of fish predators on population processes in Delta salmonids. Nonetheless, there are significant limitations in historical data sets from the Delta.

Estimates from energetics

Predation mortality may be measured directly by calculating the total mass or number of juveniles consumed by a predator population, and comparing that to the initial biomass or number of juveniles. In the simplest terms, total consumption of juveniles by a predator is a product of three things: predator population size, per-capita consumption rate, and the proportion of diet consisting of juveniles. This approach has been applied widely, often by using bioenergetics models to estimate per-capita consumption from growth and temperature data (Stewart, et al. 1981; Hansson, et al. 1996). However, bioenergetics models may not be appropriate if predation occurs over relatively brief time periods, because accurate quantification of growth under this circumstance requires frequent and intensive sampling. Furthermore, if fish predators have large home ranges then it may be difficult to link dietary habits and growth patterns to a specific location. Nonetheless, gastric evacuation models coupled with frequent sampling of predator stomach fullness may be used to provide estimates of consumption over short time intervals (Hansson, et al. 1996; Olson and Mullen 1986; Benkwitt, et al. 2009).

An ideal study design would quantify the number of salmon juveniles passing through a river segment over a defined time interval, and simultaneously measure the feeding of all main predators. If paired with an independent estimate of juvenile survivorship (e.g. through acoustic or PIT tags), then the fraction of total mortality due to each predator can be determined as long as dietary composition and population size of the various fish predators are known.

Unfortunately there are few published studies that have data sufficient to derive reliable estimates of predation intensity using this method. Dietary studies that support bioenergetics work should ideally use unbiased methods, identify salmonid prey to race/run and origin (if possible), and estimate mass or energy content of the prey categories in the gut (Ahlbeck et al. 2012). Delta-wide estimates of consumptive demand by striped bass have been generated

(Loboshefsky, et al. 2012), but those rely on imprecise abundance estimates that may not be representative of Delta populations. Moreover, Loboshefsky, et al. (2012) estimated total annual consumption of striped bass and therefore did not quantify predation intensity on salmonids during emigration. In addition, there are few dietary data for fish predators in the Delta that are of the quality needed estimate fish predation effects via bioenergetic models. Specifically, there appears to be little evidence of frequent and consistent consumption of salmonids in the Delta by fish predators (FISHBIO 2013; Louise Conrad, presentation), but this does not mean that there is no population-level impact on the prey because salmonid availability may be temporally restricted and not well sampled. In addition, if prey populations are small, low levels of predation may still have a population-level impact. Because temperature is a factor that strongly influences bioenergetic processes in fishes, small scale (e.g., km) temperature monitoring throughout the Delta would facilitate future bioenergetics or gastric evacuation-based consumption studies. In conclusion, bioenergetic modeling coupled with accurate fish predator population size estimates are direct and useful methods for quantifying the effects of fish predators on salmonid populations. A final caveat is that unless bioenergetic modeling is coupled with prey population data, then it is possible that high mortality within the Delta could be compensated for by low oceanic mortality and relative stasis in adult population size.

Experimental Approaches

Controlled predator reduction experiments are one of the best methods for evaluating the effects of predation on survivorship of prey. Predator removal experiments with appropriate replication and suitable controls are the strongest method of determining the impacts of predators on prey populations. Nonetheless, like all methods, they are not free of logistical and interpretational limitations. Of necessity, predator removals can only be done over relatively restricted areas, and it is then difficult to “scale-up” results to a river or ecosystem. Maintaining an ecologically significant reduction in predator abundance within treatment sections also is challenging because of recolonization. In the one experiment conducted in the Delta region, predators were removed once and then again roughly one week later (Cavallo et al. 2012); however, recolonization was so extensive that it was unclear how long the actual “removal effect” was maintained. In addition, recolonization in many cases was by adults (i.e. potential predators) rather than by young and potentially inefficient predators (unpublished data). The complexity of conducting

realistic predator removals in a system such as the Delta is daunting. Rather than rely on repeated removals, which also subject prey populations to stress, some investigators have relied on physical exclusion after removal (i.e. barriers to reinvasion), but these barriers also may alter environmental characteristics within experimental sites, including alteration of prey assemblages. In certain circumstances, semi-permeable excluders can be placed in smaller systems to exclude predators while letting prey pass through (Pearsons 1994).

If predation is an important regulator of salmonid survivorship, then survivorship in reaches with high predator densities would be expected to be lower than those with low predator densities. Thus, a comparative approach that combines independent estimates of predator abundance (or other variables that govern vulnerability to predators, such as flow, turbidity, structural habitat) and juvenile prey survival can provide insight into predation, although this approach assumes that all other factors are equal. Comparative approaches should attempt to control or account for differences in survival that are unrelated to predation so that spurious results are reduced. For example, low prey survival could occur in an area with low predator densities because of poor water quality and high survival could occur in areas with high predators because of good water quality. Existing tagging studies indicate high variation in survivorship across the Delta (Buchanan, et al. 2013), and this variability could be used to generate hypotheses about underlying mechanisms.

Tag and Release

Acoustic and other tags may be used to estimate survivorship and these data may then be used to generate hypotheses regarding predation mortality. If one assumes that all mortality is due to predation, the existing data collection programs (e.g. the VAMP, Michel 2010) can be used to map areas of high predation intensity and to generate estimates of total predation mortality. However, it is unlikely that this assumption is justified and it is difficult to control for the effects of handling and the physiological stress imposed by the tag. Similar to other methods this approach also typically cannot distinguish ultimate (e.g. physiological stress) vs. proximate (predation) mechanisms influencing survivorship. Most tagging studies have been conducted with hatchery fish which also may yield biased results. Hatchery origin fish may perform differently than natural origin fish because of differences in behavior, physiology or size.

Furthermore, the effects of tags on susceptibility to predation also must be considered (Wargo-Rub et al. 2011, 2012). Tagging also typically cannot yield information on mortality produced by different species of fish predators, although habitat data might aid in inferences of this type. However, tagging may be one of the better methods for identification of spatial variation in survivorship.

Estimating Population-level Effects

The statistical approach used by Lindley and Mohr (2003) and also by Hendrix and colleagues provides the most direct way to assess how salmonid production has historically varied with population abundance. By estimating parameters from historical data, the consequences of future actions that change predator densities can be forecasted. As noted above, this approach works best when the predator-prey system is stationary, i.e., the vulnerability of salmonids to predators has been unchanged over the historical data record. One of the benefits of this technique is that it has the potential to span the entire life-cycle of salmon; hence, it is capable of incorporating compensatory survivorship that occurs after the juvenile stage.

An alternative to statistical approaches is an exploratory stage-based population model that captures the main demographic processes across salmonid life histories. The Panel recognizes that these models may be used to estimate the percentage increase in emigration survivorship that may be reliably detected at the population level, given presumed levels of variability in other stage-specific parameters. Alternatively, the Panel sees opportunities to use these models to define the levels of mortality in post-juvenile stages that are needed to produce a positive population growth rate given current estimates of emigration survivorship (derived from tagging or other studies). If these levels are not biologically realistic, it implies that some component of the delta salmonid population biology is poorly understood and therefore warrants investigation. There is likely ample data available that can be used to parameterize an exploratory model of this type.

Finally, a more comprehensive food web modeling approach could be used to assess the role of predation on populations. It is quite likely that any food web model will quickly find limitations in data inputs needed for parameterization. Regardless, modeling workshops—where the goal is

to synthesize existing data and to flag key uncertainties (Walters 1986)—may be used to generate hypotheses about the importance of functional responses, migration times, and how those might be affected by flow regime, turbidity, SAV, predator density and type. This can also be used to identify unexpected indirect effects of predators that might induce population level effects that are opposite from that expected when only considering a single predator and a single prey species. Qualitative models can be used specifically to capture key feedback processes without the need to specific parameter estimates (Dambacher, et al. 2009; Dambacher and Ramos-Jiliberto 2007; Hosack, et al. 2008; Metcalf, et al. 2008)

In summary, we find that for each method some data are available, but in no case are all data available. That said, a combination of approaches might be useful for bracketing plausible ranges of predation mortality rates imposed by fish and other predators. Furthermore, a combination of approaches may allow for addressing weaknesses in any particular method, thereby allowing stronger conclusions.

2C – Regionally Varying factors: Predation Hot Spots

The literature, presentations and published information (Appendices 1-2) make it clear that a number of key locations within the Delta are predation “hot spots” where substantial mortality, presumably predation, consistently occurs (Gingras 1997; Michel 2010; Buchanan et al. 2013, presentation; FISHBIO 2013; San Joaquin River Group 2013). A list of these hotspots is presented in Table 2 and it is clear that they are most often located near artificial structures. By region the hotspots are as follows:

Region 1 - If the Sacramento River DCC gates are opened during the salmonid migration period there is a possibility of juvenile salmonids being diverted into the Central Delta (Region 4) and experiencing high mortality. In general, the DCC is managed so that gates are closed when salmon are in the region. However, closing the DCC gates reduces the input of higher quality Sacramento River source water into the Mokelumne (Region 3) and Central Delta (Region 4). Historically, however, there have been cases where water quality issues in the Central Delta (Region 4) have resulted in DCC gate openings even when salmonids are in the area. In these cases, the DCC gates were opened for short periods, but nonetheless, salmonids could be

transported into inhospitable areas with increased fish predator abundance (i.e., Georgiana Slough or Region 4).

Region 2 – There was no evidence of significant fish predation hotspots in this Region.

Region 3 - It is unclear whether Georgiana Slough is considered a hot spot because it is a transport channel to regions with low salmonid survivorship or if the channel itself is an area of high predation. The channel is narrow (50-150 m) with rip-rapped levees on either side and no side channels. Nonetheless, this location has been identified as a mortality “hot spot” (BDCP CM15 2013).

Region 4 - Franks Tract has been identified as a predation hot spot in BDCP Conservation Measure 15. However, neither the Panel literature nor the presentations addressed predation in this location. In addition, the modeling presentations did not include Franks Tract in their simulations. Given that the levee between Franks Tract and Old River has eroded significantly, it is unlikely that modeling simulations are representing water exchange in this region properly and may minimize the importance of Franks Tract. Studies of phytoplankton dynamics in Franks Tract demonstrated that tidal exchange between this shallow water habitat and the adjacent channels is an important mechanism controlling phytoplankton concentrations in this region (Lopez et al. 2006, Lucas et al. 2002). This shallow water habitat also influences turbidity, a key environmental factor for predation.

The Stockton Ship Channel has been identified as a predation hot spot based on mortality rates of tagged salmonids (Vogel 2011), although there was no direct evidence that the fish were killed by predation or whether salmonids were stressed by low dissolved oxygen levels (or a combination of both mechanisms), sometimes present in that habitat.

Region 5 – The readings and presentations indicate there are multiple predation hot spots in Region 5. Clifton Court Forebay (CCFB) has been identified by multiple sources as an inhospitable location for salmonids. Within CCFB several areas are particularly hazardous including: 1) the deep scour hole just inside CCFB by the radial gates; 2) the trash gates in front

Table 2 Identified hotspots for fish predation on salmonids in the Delta.

Hot Spots	Region	References
Painterville Bridge (Junction of Sacramento and Sutter Slough)	Region 1	BDCP CM15
Georgiana Slough	Region 1 Region 3	BDCP CM15
Delta Cross Channel	Region 1 Region 3	Perry et al. 2010
Franks Tract	Region 4	BDCP CM15
Mildred Island	Region 4	Nobriga and Feyrer 2007
Stockton Ship Channel	Region 4	Vogel 2011
Clifton Court Forebay 1) deep scour hole by radial gates 2) trash gates@ Tracy Fish Collection Facility 3) Old River adjacent to the radial gates	Region 5	BDCP CM15, California F&G 2011 Vogel 2010 Vogel 2010 Gingras 1997
Borden Highway Bridge (Old River and Hwy 4)	Region 5	Vogel 2011
Seasonal South Delta Physical Barrier 1) Head of Old River Barrier 2) Old River near Tracy	Region 5	Bowen et al. 2009 BDCP CM15 Vogel 2010
Scour hole directly downstream of the head of Old River	Region 5	Vogel 2010
salvage release sites	Region 6	BDCP CM15
Red Bluff Diversion	North of Delta Sacramento	Tucker et al. 1998

of the Tracy Fish Collection Facility; and 3) section of Old River adjacent to the radial gates. The bridge passing over Old River directly downstream of the CCFB complex also is known to have significant predator abundances. The seasonal temporary barriers (Middle River, Old River and Grant Line Canal) also are hot spots, with predators patrolling culverts or notches that allow water circulation. Fish predators are known to frequent the deep hole directly downstream of the HORB. When the HORB is inactive and the water tidal in the region, prey could potentially be tidally washed in and out of the deep hole below the HORB.

Region 6 - Current information, though not extensive, suggests that fish predation is not significant in this region except at release locations of fish transported by truck from the State Water Facilities.

In conclusion, available data and analyses have generated valuable information regarding aspects of the predation process in the Delta but do not provide unambiguous and comprehensive estimates of fish predation rates on juvenile salmon or steelhead nor on population-level effects for these species in the Delta. Recent survival studies are based on acoustic tagging of larger hatchery-raised fish from ~95 to >250 mm FL. Although it is assumed that much of the short-term (<30 d) mortality experienced by these fish is likely due to predation, there are few data establishing this relationship. Juvenile salmon are clearly consumed by fish predators and several studies indicate that the population of predators is large enough to effectively consume all juvenile salmon production. However, given extensive flow modification, altered habitat conditions, native and non-native fish and avian predators, temperature and dissolved oxygen limitations, and overall reduction in historical salmon population size, it is not clear what proportion of juvenile mortality can be directly attributed to fish predation. Fish predation may serve as the proximate mechanism of mortality in a large proportion of the population but the ultimate causes of mortality and declines in productivity are less clear. For example, stress caused by harsh environmental conditions or toxicants will render fish more susceptible to all sources of mortality including predation, disease or physiological stress. This point was stressed in a recent report by the National Academy of Sciences on the Delta environment “Nobody disagrees that engineering changes; the introduction of many exotic species, the addition of contaminants to the system, and the general effects of an increasing human population have

contributed to the fishes' declines. There are, however, disagreements about the relative contributions of those factors and the appropriate remedies for them."

Section 3 Research Needs and Study Design

In this section we give general advice regarding study design and identify both high and lower priority research needs, based on the readings and presentations. The appropriate study design depends entirely on the questions and/or hypotheses being addressed, and hence a clear articulation of hypotheses is necessary for meaningful research (Fowler & Hobbs 2009). In its review of past research the Panel noted a lack of consistent methodologies used even among similar studies, making comparisons and syntheses difficult. Some studies failed to state clear objectives/hypotheses or place the study within an overarching research framework. In addition, multiple studies failed to provide adequate detail on environmental conditions (flow levels, temperatures, etc.) rendering both the interpretation and representativeness of results open to question. Frequently, important methodological issues were not thoroughly described and resulting data presented without quantification of variance or other measures of statistical uncertainty. These issues made it difficult for the Panel to evaluate the reliability and generality of conclusions from past work.

It is obvious that research in the Delta is conducted by a complex of federal, state, local and non-governmental organizations who either use their own personnel (with various levels of training) or subcontract work to private firms or academic institutions. As might be expected, this produces a situation where different investigators use different methodologies, sometimes for even the same research question. The lack of common research methodologies and coordination of research projects certainly has inhibited the abilities of researchers and managers to build on previous studies and maximize the productivity of sequential/long-term research projects, which are necessary for scientific management of the Delta. We recommend development of a set of standard methodologies, developed and agreed upon by researchers, for ecological studies in the Delta and not restricted to those linked to predation. The National Ecological Observatory Network has recently gone through this process and established, via expert opinion, sampling methodologies for fish population sampling in streams and lakes on Observatory sites. Standardized approaches are also being applied and advanced among multiple organizations in

the Columbia River Basin. Agreement upon standardized methods will improve research coordination and reduce the need for duplication of studies, and such efforts are already underway (Johnson et al. 2007). Mainly, however, it will ensure that the research studies build on each other to advance our knowledge and ability to manage the Delta in the most efficient manner possible. Investigators should be free to design studies using the best available methods; however, to maximize the utility of new data future research should adhere to several general principles. It is possible that the development of standardized methods could be undertaken through funded workshops of experts and their use incentivized via “use agreements” in future funding. A set of proposed methodological guidelines follows:

- 1) Studies need clearly articulated questions and objectives that relate to data gaps in conceptual models of the system (Brown and Guy 2007). Hypotheses should be falsifiable and specific to time and space and representativeness of both mean and variances in environmental conditions (i.e. conducted during high flow years, low flow years etc.)
- 2) Regardless of the scale and duration of the study, research should be conducted to meet standards of scientific peer review.
- 3) Sampling methods need to be operationally defined, appropriate, and standardized (Johnson et al. 2007; Bonar et al. 2009; Zale et al. 2012).
- 4) Empirical studies should adhere to fundamental principles of sampling/experimental design including randomization, quantitative assessment of sample size adequacy and power analysis (Hansen et al. 2007).
- 5) Modeling studies should state and justify assumptions, have clearly stated objectives that motivate model development, consider alternative conceptualizations of model states and conditions, include error/sensitivity analysis, and whenever possible, employ independent data for validation (Hilborn and Walters 1992; Anderson 2008).
- 6) Sampling, experimentation and modeling are most synergistic when performed in a coordinated fashion: models and experiments should produce testable predictions that can be addressed with future empirical studies. Modelers and empiricists should work together to further refine the precision and accuracy of models, especially those used for management.

It also is clear that both current research and management are limited by the lack of a centralized “data repository” with perhaps a relational data base and an integrated, publically accessible, GIS for the San Francisco Bay Delta ecosystem. The lack of a data repository, similar to that used by the National Science Foundation Long-Term Ecological Research Program, makes it difficult for researchers and the public to know which data have been collected, where data are located and how data can be accessed, even when they exist. This should be a future priority from both a policy and research management standpoint.

An additional focus of future funding should be the development of a system-wide GIS with funds provided for both extant and future data to be entered in such a system. Although far from an exhaustive list, the GIS should include layers for water temperature, air temperature, cloud cover, turbidity, salinity, conductivity, and other water quality measures, temporal and spatial distributional and abundance data for flora and fauna, distribution of engineered structures influencing flow, flow direction, magnitude and velocity, water depth, operating conditions at all monitored water projects, and other relevant data should be included. At least some of these data currently are being collected via the California Department of Water Resources (e.g. CDEC) and the U.S. Geological Survey (flow and sediment data), although many lie in the hands of individual investigators. All data that are provided on web databases should go through quality control to be reliably used in future investigations. In addition, funding for the existing network of environmental monitoring sites (e.g. stage, flow, sediment, temperature, salinity, and meteorological data) throughout the Delta should be continued into the future. This basic information is essential for all research in the Delta. Additional environmental monitoring sites in Clifton Court Forebay and Franks Tract should be established. Finally, it is our understanding that much of the flow modeling is proprietary and not readily available to many investigators. Efforts should be made to develop non-proprietary models or to establish cost-effective agreements with proprietary data holders to make models widely available.

Primary future research

We have divided future research into two types: primary and secondary. Primary research is essential to evaluating predation risk and secondary research provides important complementary information that helps to evaluate predation risk:

- 1) It will be essential to obtain spatially and temporally explicit, Delta-wide estimates of predation risk for juvenile salmonids. Of particular value would be studies that quantify the percent of the prey population (by species and origin) consumed by predators. This might be done in areas that are hypothesized “hotspots” as well as in “normal locations”. Estimation of predation risk and exploitation rates by predators will require accurate estimates of both predator and prey abundance.
- 2) Given that higher predation rates appear to be a function of specific locations with atypical characteristics such as Clifton Court Forebay, Red Bluff Diversion Dam and some domestic water intakes, it seems likely that predation estimates from these structures are not representative of the Delta as a whole. Perhaps juvenile salmonids only are susceptible to predation in unusual conditions and efforts should then be focused on making conditions in these localities more conducive to juvenile salmonid survival. To this end, it also is clear that Clifton Court Forebay is a predation hotspot and that both predators and salmonids may move in and out of this habitat. However, little is known about the hydrology around the radial gates that may attract or repel fishes. A better understanding of the hydrological processes and their effects on fish behavior around this and other predation hotspots could yield insights into flow/structure-based management changes that could reduce levels of salmonid predation mortality.
- 3) There is a need for fishery-independent, Delta-wide estimates of population size for fish predators of salmonids including estimates of precision and bias. These estimates should encompass both the spatial and temporal variation present in environmental characteristics of the Delta. Potential species include striped bass, largemouth bass, Sacramento pikeminnow, large sunfish and catfish. These estimates should be size-

specific because YOY/1+ fish predators are unlikely to consume juvenile salmonids yet they form the basis of much of the historic population data base. It is important that these estimates be derived in ways that are based on well-established methods so that the uncertainties in the estimates can be reliably determined. Furthermore, it is important that abundance is estimated during times when predation is thought to be highest (e.g., times of spatial overlap with prey) so that the abundance information is relevant to the question of predation. In addition, there is little information on population sizes of salmonids as they remain or transit the Delta.

- 4) Additional BACI-design predator removal experiments are needed, conducted in various Delta regions. Although logistically difficult, these studies like are the most direct way to answer questions regarding the effects of fish predation on juvenile salmonids. Nonetheless, the data from the one predator removal experiment that has been conducted indicated that recolonization was rapid and mean sizes of colonists did not differ for abundant species from that of the original inhabitants. Consequently, predator removal may merely end up in compensatory recolonization or increases in predation by other predators such as sea birds. Thus, these experiments need to be conducted at relatively large time- and space scales and with adequate replication to provide results that are meaningful. Active adaptive management can be applied to create these large-scale manipulations.
- 5) A better understanding is needed of the mechanics of the predation process for fish predators. Studies should be conducted on functional responses, handling times, meals/day, metabolic requirements, etc. to obtain potential predation pressure estimates per predator species which, when combined with spatially explicit population estimates and bioenergetic and population modeling would lead to estimates of the percentage of the salmonid populations consumed by each predator species. These studies need to include relevant environmental factors such as turbidity and temperature variation, for example. Concomitantly, these studies should be conducted with both natural and hatchery origin juvenile salmonids because natural origin fish may migrate at a smaller size and behave differently than hatchery origin fish. If a large proportion of juveniles

come from natural sources and smaller fish are subjected to higher predation rates than larger fish, then tagging studies with fish over 100mm FL may actually underestimate predation rates. Due to the specimen-size restrictions of tagging studies, it may be necessary to use modeling to address this question, with assumptions regarding higher mortality rates compared to known survivorship of different year classes. This latter question basically reduces to: do predation rates by piscivores on natural vs. hatchery origin fish differ? Isotopic analysis of muscle tissue and otoliths ($^{87}\text{Sr}/^{86}\text{Sr}$) may offer potential ways to identify the origin of fish too small to be tagged or larger fish that may have lost a tag, and can be performed on juvenile salmonids sampled from stomachs of predators, provided they are not too digested.

- 6) Both growth-based and meal-turnover bioenergetic models should be developed and validated for the dominant predator species. We are not aware of a bioenergetics model developed specifically for channel or white catfish, but well-accepted models exist for striped bass, largemouth bass and northern pikeminnow. Laboratory work to develop catfish bioenergetics models and to test the accuracy of sensitive parameters in the bass models would make this modeling approach more generally accepted and useful. It appears that recent bioenergetics modeling provided a wide scale but relatively low resolution analysis of striped bass consumptive demand in the Bay-Delta system. As more detailed information on predator abundance, distribution and diets become available, system-wide estimates of consumption of juveniles with bioenergetics models should be refined.
- 7) Estimates are needed for the cumulative effects of physical and chemical stressors during migration through the lower rivers and Delta, especially because these effects may be the true causal mechanism for mortality via predators. One option for future research is to quantify the effect of selected stressors on juvenile salmon (e.g., Thorstad et al. 2013). Such an experimental approach could provide a clearer indication of the role environmental conditions play in the ability of juvenile salmon to evade predators during emigration.

- 8) The relationships between submerged aquatic vegetation, predator distributions, flow patterns and predation intensity needs to be established via experimental and descriptive studies. In particular, there apparently have been few studies that either sampled or focused on Franks Tract which is the largest shallow water habitat in the central Delta. Franks Tract historically has held large populations of adult striped bass and also has significant amounts of *Egeria* which affects both water clarity and flow patterns.
- 9) Managers would greatly benefit from development of a spatially explicit decision model that examines where restoration/anti-predator efforts can have the biggest impact on increasing juvenile production.

Secondary research

- 1) A better understanding is needed of the relationship between tag/fish loss and predation. Specifically, what percentage of tag/juvenile loss is due to predation and what percentage to other forms of mortality. Dr. Buchanan (presentation) had some excellent data on this.
- 2) Based on historical data, survivorship of juvenile salmonids decreased in the late 1990s and early 2000s, especially from the San Joaquin River. Biological, physical, and chemical data should be examined to determine what might have caused this decline and whether it could yield productive hypotheses regarding the mechanisms behind the current situation.
- 3) The effects of flow, especially when water is diverted along an artificial pathway (i.e., Sacramento River water to the Central Delta via the DCC) on olfactory cues that salmonids use for both upstream and downstream migrations should be evaluated.
- 4) A tremendous amount of money and effort has gone into telemetry studies but many of these were relatively small-scale in space and time. A meta-analysis of existing telemetry results could provide more general conclusions from the telemetry datasets.

Table 3 A summary of future research topics along with their advantages and shortcomings and methodological examples for these topics.

Research topic	Advantages	Shortcomings	Methodological examples
		Primary	
1 & 3) Spatially explicit and comprehensive estimates of predation risk for juvenile salmonids	Would generate empirical estimates of predator and prey population abundance, predation rates, and precision and bias	Certain fish predators migrate Stratified, randomized sampling designs can be labor-intensive & expensive Limitations of fishery-dependent data Need for fishery-independent data	Beauchamp et al 1999 Fritts and Pearsons 2004
2) Mortality hotspots and effects on prey behavior and predation rates	Acquisition of site-specific, relevant information Potentially identify linkages between hydrology, behavior and predation Focuses on the areas that are likely responsible for a greater proportion of predation and may require greater sampling effort	Logistically challenging Experimental prey may be limited to hatchery fish	McCormick et al 1998 Major et al 2005
3) Experimental predator removal – Before After Control Impact Design (BACI) and use of “control” reaches	Experimental approach allows for more direct evaluation of mechanisms Ability to compare with prior conditions (Before-After) as well as un-manipulated areas Potential to have actual impact on survival rate in field at certain “hotspots”	Logistically feasible only at smaller spatial scales and in certain locations Challenges to scale up May need multiple removals in same locations	Bestgen et al 2007
4) Bioenergetic approaches, lab approaches, estimation of functional responses	Empirical estimates of potential consumption rates Could assist in design of field studies, i.e., required sample sizes, generate specific expectations/hypotheses to guide field studies Could explicitly incorporate variance in model parameters	Requires experimentation under realistic variation in temperature, turbidity, prey density, alternative prey density, prey body size	Model development: Keskinen et al 2008
5 & 6) Bioenergetic approaches, field approaches, population-level estimates	Can provide population-level estimates of consumption Potentially more representative than laboratory studies Can be coupled with lab studies	Diel sampling required in multiple locations Difficult to accurately incorporate full range of environmental variation Difficult to translate to functional response	Trudel & Rasmussen 2000 Ney 1990 Johnson et al 2008
6) Differentiation between hatchery and natural production – individual vs sample population level	Would address whether origin influences predation Easier to address at population-level with initiation of constant fractional marking approach	Time consuming and costly but more informative More limited inference if based on marking rates due to lack of individual information	Barnett-Johnson et al 2007 Zhang & Beamish 2000 Weber et al 2002 Woodson et al 2013 Lepak et al 2012b

7) Assessment of cumulative effects	More comprehensive, ecosystem-based approach	Need to identify a subset of testable parameters amongst a long list, i.e., temperature, dissolved oxygen, pesticides, etc	Thorstad et al 2007
8) Habitat-specific estimates of predation rates	Allow for more accurate estimates of system-wide predation rates	Requires logistically challenging, stratified, randomized sampling design	Cartwright et al 1998 Harvey & Nakamoto 2013 Lawrence et al 2012
9) Spatially-explicit decision models	Help identify knowledge/data gaps and develop clear, testable hypothesis relevant to management needs	Requires “buy-in” by multiple stakeholders	Shelton presentation
Secondary			
1) Tag effects, detection of tag loss, and identification of predation events associated with acoustic tags	Improve accuracy of mortality estimates		Wargo-Rub et al 2012
2) Meta-analysis of existing survival studies	Synthesize results from disparate studies Aid development of system-wide understanding and identify factors related to survival	Different tag types, species, and experimental design inhibit robust comparisons	Zelasko et al 2010
3) Examine alternative hypothesis for high rates of juvenile mortality	Employ method of multiple working hypotheses and enables an information-theoretic approach		Chamberlin 1890 Elliot & Brook 2007 Anderson 2008
4) Influences of flow on juvenile & adult migratory behavior	Necessary information for evaluating impacts of predation, in particular identification and evaluation of management options to decrease predation rates	Logistically challenging, spatially limited	McCormick et al 1998 Quinn et al 1997

ACKNOWLEDGEMENTS

We thank the presenters, the authors of the papers reviewed and the conveners (California Department of Fish and Wildlife, the Delta Science Program and National Marine Fisheries Service) for making this workshop possible. Specifically: Carol Atkins, Peter Goodwin, Matt Holland, Gregg Erickson, Sam Harader, Steve Lindley and Allen Barnes. James Croft aided in preparation of the ms. The authors would like to thank their institutions for allowing their participation in the workshop and providing material support. To avoid any appearance of conflict of interest it is necessary to point out that one panel member (Nancy Monsen) is currently working on a non-proprietary flow model of the Delta as recommended in this report.

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APPENDIX ONE

CHARGED READINGS FOR PREDATION WORKSHOP PANEL

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APPENDIX TWO

RESEARCH PRESENTATIONS AT THE PREDATION WORKSHOP

9:15	Introductory Remarks	Carl Wilcox, California Department of Fish and Wildlife; Peter Goodwin, Delta Science Program Lead Scientist; and Maria Rea, National Marine Fisheries Service
9:30	Panel Introduction	Panel
10:00	Bay Delta System Orientation (25 minutes each)	1. Hydrodynamics – John DeGeorge, RMA 2. Operations – Ron Milligan, USBR 3. Ecological Context – Larry Brown, USGS 4. State of Salmonids in the Delta – Carl Wilcox, CDFW
1:00	Salmonid Survival and Fish Predation Studies (25 minutes each)	Fish Predation Studies 1. CCF, Head of Old River, & Georgiana Slough - Jacob McQuirk, DWR Bay Delta Office 2. Largemouth Bass - Louise Conrad, DWR Division of Environmental Services 3. Striped Bass Migration - Cynthia LeDoux-Bloom Salmonid Survival Studies 1. Juvenile Salmon Survival – Steve Lindley, Sean Hayes, Cyril Michel, NMFS 2. San Joaquin Studies - Rebecca Buchanan, Univ. of Washington
3:45	Models (15 minutes each)	1. OBAN - Noble Hendrix, QEDA Consulting, LLC 2. NMFS Life Cycle Model - Steve Lindley, NMFS 3. Delta Passage Model - Brad Cavallo, Cramer Fish Sciences 4. SALSIM – John Shelton, CDFW, Region 4 5. Bioenergetics – Erik Loboschfsky, DWR, Suisun Marsh

		Planning Questions from panel to follow all the presentations.
5:15	Questions, Comments	Public (from Blue Cards)
5:50	Concluding Remarks, Next steps	Gregg Erickson, CDFW, IEP Manager

APPENDIX 3 – Summary of current hatchery releases in the Central Valley identified in the review by the California Hatchery Scientific Review Group (2012). Since the 2006 brood year, tagging programs for most Chinook salmon hatcheries in California consist of “constant fractional marking” programs in which a fixed proportion (25%) of all hatchery fish are externally marked by an adipose fin clip and internally tagged with a CWT. Chinook salmon (Fall, Spring) and steelhead (SH). The abbreviation fpp stands for “fish per pound”

Source	Initial Year	Runs	Production
Nimbus Fish Hatchery	1955	Fall Chinook, steelhead (SH)	<p>Fall: Four million juveniles (≥ 60 fpp) Mark rate of 25% with an adipose fin-clip and coded wire tag (CWT) and released in San Pablo Bay between mid-May and mid-June</p> <p>SH: 430,000 yearlings (4 fpp) Mark rate of 100% with an adipose fin clip Fish are released from January to February above the confluence of the American and Sacramento rivers to reduce predation on natural-origin Chinook fry</p>
Mokelumne River Hatchery	1961	Fall Chinook, SH	<p>Fall: Five million juveniles (≥ 60 fpp) Approximately two million additional juveniles raised to post-juveniles size (45 fpp) for ocean enhancement program All enhancement production is released into San Pablo Bay or reared in coastal net pens Remaining juveniles are released ~10 mi downstream of the hatchery between March and June Mark rate of 25% with an adipose fin-clip and CWT</p> <p>SH: 250,000 yearling steelhead (4 fpp) Experimental releases ($< 2,000$ fish) of two-year-olds using a “natures” rearing strategy All production released from February to March with an adipose fin clip downstream from the confluence of the Mokelumne and Consumes rivers</p>
Merced River Hatchery	1970	Fall Chinook	Most releases are for experimental purposes 960,000 juveniles and 330,000 yearlings The yearling program was discontinued due to high mortality from proliferative kidney disease One million juveniles (60 fpp) are adipose fin-clipped, CWT, and released between late April and mid-May Remaining fish are marked at a 25% with an adipose fin-clip and CWT Releases occur at the hatchery, at lower Merced River locations, and at various locations in the San Joaquin River and further downstream
Feather River	1960s	Fall & spring	Fall: Production goal of six million fall-run juveniles (≥ 60 fpp) Up to two million additional fish may be for ocean

Hatchery		Chinook, SH	<p>enhancement program (≥ 30 fpp) Majority of juveniles are released into the Carquinez Straits between April and June Mark rate of 25% with an adipose fin-clip and coded wire tag (CWT)</p> <p>Spring: Mitigation and conservation production Two million juveniles (60 fpp) released during April or May with a mark rate of 100% with an adipose fin-clip and coded wire tag (CWT), released into the Feather River south of Yuba City</p> <p>SH: 450,000 yearling steelhead (3 fpp) released during late January or February Mark rate of 100% with an adipose fin-clip and released into the Feather River south of Yuba City or at the confluence of the Feather and Sacramento rivers</p>
Coleman National Fish Hatchery	1943	Fall & late-fall Chinook and steelhead	<p>Fall: Twelve million fall Chinook in April (90 fpp) Mark rate of 25% with an adipose fin-clip and coded wire tag (CWT), and released at the hatchery Ninety percent are released at or near the hatchery in Battle Creek; 10% released into San Pablo Bay</p> <p>Late-fall: One million late-fall Chinook released in December (13 fpp) Mark rate of 100% with an adipose fin-clip and coded wire tag (CWT), and released at the hatchery or near the hatchery in Battle Creek</p> <p>SH: 600,000 steelhead in January (4 fpp) Mark rate of 100% with an adipose fin-clip released into the Sacramento River ~15 mi downstream of the Battle Creek confluence to reduce predation on emerging Chinook in the upper Sacramento River and Battle Creek</p>
Livingston Stone National Fish Hatchery	1997	Winter-run Chinook for population recovery	<p>Winter-run: Up to 250,000 winter-run Chinook salmon (≥ 60 fpp) released in late January or early February Mark rate of 100% with an adipose fin-clip and coded wire tag (CWT), and released into the Sacramento River at Caldwell Park (RM 299), ~10 mi downstream of the hatchery</p>

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North American Journal of Fisheries Management

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/ujfm20>

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Version of record first published: 01 Feb 2013.

To cite this article: Rebecca A. Buchanan, John R. Skalski, Patricia L. Brandes & Andrea Fuller (2013): Route Use and Survival of Juvenile Chinook Salmon through the San Joaquin River Delta, North American Journal of Fisheries Management, 33:1, 216-229

To link to this article: <http://dx.doi.org/10.1080/02755947.2012.728178>

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ARTICLE

Route Use and Survival of Juvenile Chinook Salmon through the San Joaquin River Delta

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Abstract

The survival of juvenile Chinook Salmon through the lower San Joaquin River and Sacramento–San Joaquin River Delta in California was estimated using acoustic tags in the spring of 2009 and 2010. The focus was on route use and survival within two major routes through the Delta: the San Joaquin River, which skirts most of the interior Delta to the east, and the Old River, a distributary of the San Joaquin River leading to federal and state water export facilities that pump water out of the Delta. The estimated probability of using the Old River route was 0.47 in both 2009 and 2010. Survival through the southern (i.e., upstream) portion of the Delta was very low in 2009, estimated at 0.06, and there was no significant difference between the Old River and San Joaquin River routes. Estimated survival through the Southern Delta was considerably higher in 2010 (0.56), being higher in the Old River route than in the San Joaquin route. Total estimated survival through the entire Delta (estimated only in 2010) was low (0.05); again, survival was higher through the Old River. Most fish in the Old River that survived to the end of the Delta had been salvaged from the federal water export facility on the Old River and trucked around the remainder of the Delta. The very low survival estimates reported here are considerably lower than observed salmon survival through comparable reaches of other large West Coast river systems and are unlikely to be sustainable for this salmon population. More research into mortality factors in the Delta and new management actions will be necessary to recover this population.

The Central Valley of California marks the southern limit of Chinook Salmon *Oncorhynchus tshawytscha* in North America (Healey 1991). Chinook Salmon population abundances in this region have been much reduced from the 19th century in response to a number of factors, including habitat loss, hatcheries, and water development (e.g., pumping water out of the basin; Healey 1991; Fisher 1994). Today, the Sacramento–San Joaquin River Delta is a highly modified environment with levees and drained fields replacing tidal wetlands, and riprap replacing natural shoreline. Demand for Delta waters is high. State and federal water export facilities

extract water from the southern portion of the Delta (Figure 1) for agricultural, industrial, and municipal use throughout California. The Delta provides drinking water for approximately 27 million Californians and irrigation water for more than 1,800 agricultural users, and 4.6–6.3 million acre-feet of water are exported from the Delta annually (DSC 2011). This intense exporting combined with tidal fluctuations can sometimes cause net flows in the Delta to be directed upstream rather than downstream (Brandes and McLain 2001). Pollution from industry, agricultural and urban runoff, and erosion are also concerns (DSC 2011). Both native and nonnative species of

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Received March 28, 2012; accepted September 5, 2012

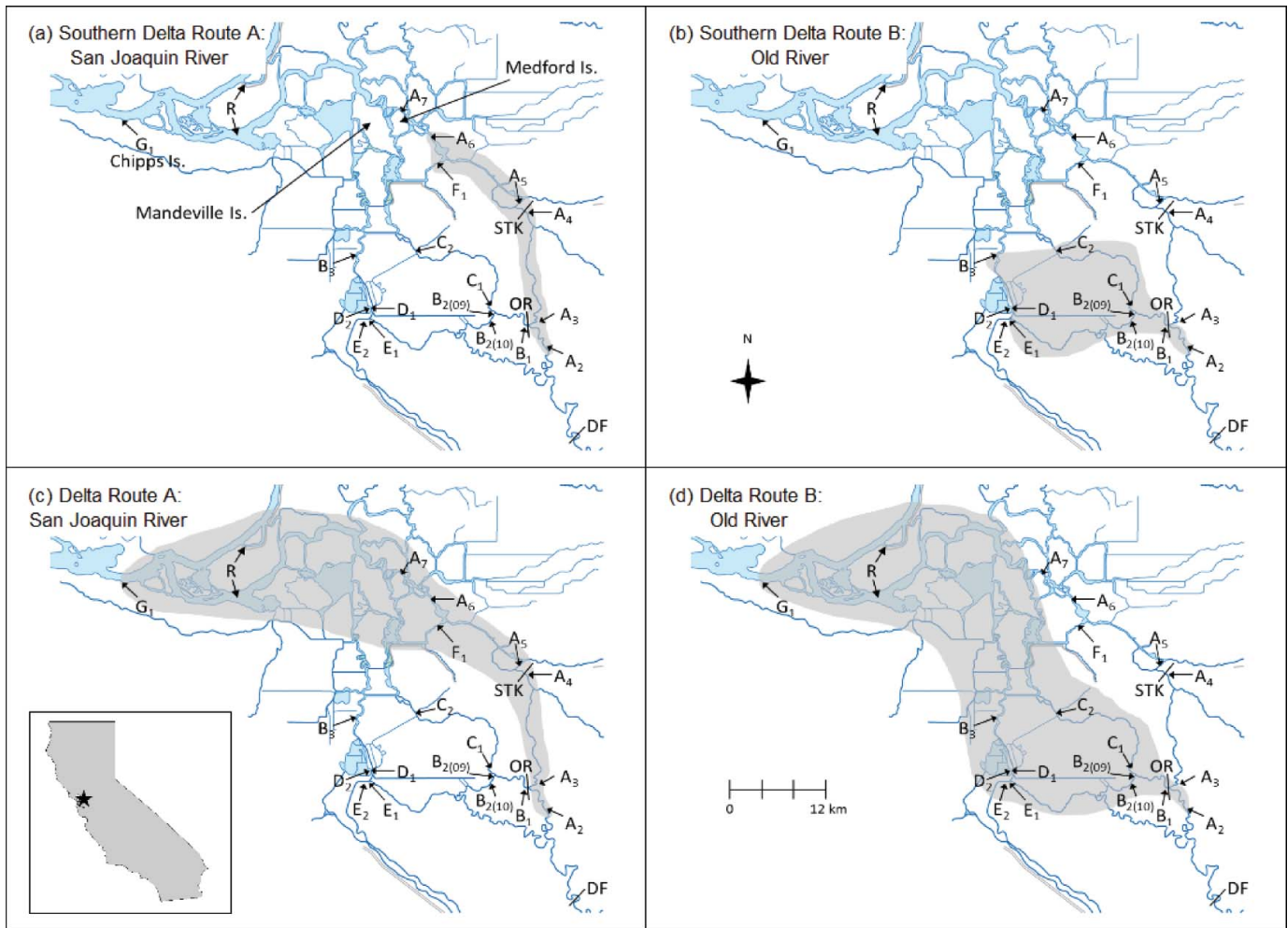


FIGURE 1. Acoustic telemetry receiver sites throughout the San Joaquin River Delta for the juvenile Chinook Salmon tagging studies in 2009 and 2010. The region included in each major route through the study area is shaded for the Southern Delta for the (a) San Joaquin River and (b) Old River routes and through the entire Delta for the (c) San Joaquin River and (d) Old River routes. Sites in the San Joaquin, Old, and Middle rivers are labeled A, B, and C, respectively. The label for site B2 includes the study years 2009 (09) and 2010 (10). Sites A7, C1, and G1 were used only in 2010. Mossdale is denoted by A2, Chipps Island at river kilometer 0 by G1, the federal water export facilities by E1 and E2, and state water export facilities by D1 and D2. The city of Stockton is near sites A5 and A6. Sites B3 and C2 are located near California Highway 4. Release sites are designated as follows: DF = Durham Ferry (2009, 2010), OR = Old River (2010), STK = Stockton (2010), and R = release after salvage and trucking. Route-specific survival and route entrainment probability were estimated for the Southern Delta in 2009 and 2010 and for the entire Delta in 2010. [Figure available in color online.]

predatory fish (e.g., Striped Bass *Morone saxatilis*, Largemouth Bass *Micropterus salmoides*, White Catfish *Ameiurus catus*) inhabit these areas and feed on migrating smolts, as do avian predators including double-crested cormorants *Phalacrocorax auritus* and white pelicans *Pelecanus erythrorhynchos*. All of these factors lower survival of migrating salmon smolts relative to historical conditions.

The Vernalis Adaptive Management Plan (VAMP) is a large-scale, long-term (12-year) experimental management program begun in 2000 that was designed to protect juvenile Chinook Salmon as they migrate from the San Joaquin River through the Sacramento–San Joaquin River Delta (Figure 1; SJRGA 2005, 2007, 2010, 2011). Part of the VAMP is a multiyear tagging study to monitor juvenile salmon survival through the Delta; the

long-term goal is to relate Delta survival to changes in river flow (discharge) and water export levels in the presence of a temporary barrier at the head of the Old River, which was designed to prevent salmon from entering the Old River (Figure 1). Prior to 2006, VAMP tagging studies relied on coded wire tags (CWTs), which provided information on salmon survival on a large spatial scale using 100,000–300,000 study fish each year (Newman 2008). Starting in 2006, the tagging studies began using micro-acoustic tags, which provide more precise survival information on a smaller spatial scale with much smaller releases groups (e.g., about 1,000 fish). Coded wire tags were discontinued in 2007. Study years 2006 and 2007 were pilot studies providing feedback on design and implementation of the acoustic tag studies. The 2008 study deployed an extensive array of acoustic

hydrophones throughout the Delta but suffered from a high degree of premature tag failure (Holbrook et al. 2013). Thus, 2009 and 2010 were the first years that provided sufficient information to estimate salmon survival through portions of the Delta on a relatively detailed spatial scale, yielding the first estimates of how fish distribute across various migration routes. Further, these 2 years represent different hydrologic conditions—very low flows in 2009 and above normal flows in 2010—thus providing preliminary information needed to identify a relationship between survival and flow. Survival through the southern portion of the Delta was estimated in both 2009 and 2010, and survival through the entire Delta was estimated in 2010 (described below; Figure 1). In both years, survival estimates were compared through two major migration routes: the San Joaquin River route and the Old River route. We present here the first spatially detailed estimates of survival and route use by juvenile Chinook Salmon through the lower San Joaquin River into the Delta.

STUDY AREA

Historically, focus has been on the survival of fish through the Delta to Chipps Island, located in Suisan Bay at the confluence of the San Joaquin and Sacramento rivers near Pittsburg, California, at river kilometer (rkm) 0 (Figure 1). Fish moving through the Delta toward Chipps Island may use any of several routes. The simplest route follows the San Joaquin River until it joins the Sacramento River near Chipps Island (Figure 1a, c; route A). An alternative route uses the Old River from its head on the San Joaquin River to Chipps Island, either via its confluence with the San Joaquin River just west of Mandeville Island, or through Middle River or the state and federal water export facilities (Figure 1b, d; route B). Additional subroutes were monitored for fish use but were contained within either route A or route B. Subroute C consists of the Middle River from the Old River to the San Joaquin downstream of Medford Island. Two other subroutes were the water export facilities off the Old River: fish entering either the State Water Project (subroute D) or the Central Valley Project (subroute E) had the possibility of being trucked from those sites and released upstream of Chipps Island. Subroutes C, D, and E were all contained in route B (Old River). Finally, fish that remained in the San Joaquin River past Stockton may have entered Turner Cut and maneuvered to Chipps Island through the interior of the Delta (subroute F). Fish in routes B, C, and F all had multiple unmonitored pathways available for passing through the Delta toward Chipps Island.

Survival through the study area was estimated on two spatial scales: (1) the southern portion of the Delta, which is bounded downstream by the federal and state water export facilities, California Highway 4, and the Turner Cut junction with the San Joaquin River (the “Southern Delta”; Figure 1a, b) and (2) the entire Delta, which is bounded downstream by Chipps Island (the “Delta”; Figure 1c, d). Both the Southern Delta and Delta regions were bounded upstream by the acoustic receiver (site A2) located near Mossdale Bridge, upstream of the Old River

junction with the San Joaquin River. The Southern Delta region was entirely contained within the Delta region (Figure 1). In 2009, no acoustic receivers were deployed at Chipps Island, so the study area was limited to the Southern Delta. In 2010, a more extensive detection field was installed, including dual receivers at Chipps Island (G1) (Figure 1). Thus, in 2010, the study area included the entire migration path through the Delta region. Two migration routes were monitored through both the Southern Delta and Delta regions: the San Joaquin Route (route A in Figure 1a, c) and the Old River route (route B in Figure 1b, d).

Since the 1990s, a temporary physical or nonphysical barrier (sound, strobe lights, and a bubble curtain) has often been installed at the head of the Old River with the aim of preventing migrating smolts from entering that river. In 2009 and 2010, a nonphysical barrier was installed there, and its smolt-guidance effectiveness was evaluated in studies concurrent with the VAMP studies (Bowen et al. 2009; Bowen and Bark 2012). The nonphysical barrier was operated during passage of approximately half of each VAMP release group in 2009 or 2010. No physical barrier was installed.

METHODS

Tagging and release methods.—Both study years used the Hydroacoustic Technology, Inc. (HTI) Model 795 microacoustic tag (diameter = 6.7 mm, length = 16.3–16.4 mm, average weight in air = 0.65 g). In 2009 a total of 933 juvenile Chinook Salmon (fall–spring-run hybrids) originating from the Feather River Fish Hatchery were tagged and released between 22 April and 13 May (fork length = 85.0–110.0 mm, mean = 94.8 mm; Table 1). Difficulties in rearing fish to size resulted in an average tag burden (i.e., the ratio of tag weight to body weight) of 7.1% (range = 4.4–10.2%), which was higher than desired ($\leq 5.5\%$; Brown et al. 2006). Six fish died in 2009 between tagging and release. In 2010, a total of 993 juvenile fall-run Chinook Salmon originating from the Merced River Fish Hatchery were tagged and released between 27 April and 20 May (fork length = 99.0–121.0 mm, mean = 110.5 mm). Tag burden in 2010 was 2.8–5.8% (mean = 4.2%; Table 1). Four fish died in 2010 between tagging and release.

In both years, tagging was performed at the Tracy Fish Facility located in the Delta approximately 30–45 km from the release site(s). Tagging procedures followed those outlined in Adams et al. (1998) and Martinelli et al. (1998). Fish were anesthetized in a 70-mg/L tricaine methanesulfonate solution, buffered with an equal concentration of sodium bicarbonate, and surgically implanted with programmed acoustic transmitters. Typical surgery times were less than 3 min. Nonfunctioning tags were removed from the study. After surgery, fish were placed in 19-L containers with high dissolved oxygen (DO) concentrations (110–130%) for recovery. Each holding container was perforated to allow partial water transfer and held no more than three tagged fish. After initial recovery from surgery, tagged fish were transported in buckets to the release site in transport

TABLE 1. Release data for groups of Chinook salmon smolts used in the 2009 and 2010 Vernalis Adaptive Management Plan studies, where DF = Durham Ferry, STK = Stockton, and OR = Old River. In 2009, releases were pooled into strata for analysis; in 2010, releases from separate locations were jointly analyzed for a single release occasion.

Release location	Release date	Release number	Mean (range) fork length (mm)	Tag burden (%)	Release stratum/occasion
Study year 2009					
DF	Apr 22	133	96.1 (86–108)	6.9 (5.2–9.0)	1
	Apr 25	134	93.4 (88–105)	7.3 (5.2–9.6)	1
	Apr 29	134	97.1 (87–110)	6.8 (4.5–3.6)	2
	May 2	134	96.6 (87–108)	6.6 (4.4–9.3)	2
	May 6	132	92.6 (85–102)	7.7 (5.5–10.2)	2
	May 9	133	93.9 (88–100)	7.3 (5.4–9.1)	2
	May 13	133	93.8 (90–104)	7.2 (5.3–8.8)	3
Study year 2010					
DF	Apr 27–28	74	108.0 (102–110)	4.4 (3.5–5.7)	1
	Apr 30–May 1	74	109.1 (103–115)	4.3 (3.1–5.4)	2
	May 4–5	73	109.4 (102–118)	4.3 (3.4–5.6)	3
	May 7–8	70	111.1 (101–119)	4.1 (3.1–5.4)	4
	May 11–12	70	112.0 (99–121)	4.1 (3.1–5.4)	5
	May 14–15	73	112.6 (101–119)	4.0 (3.1–5.3)	6
	May 18–19	70	112.1 (103–119)	3.9 (2.8–5.3)	7
STK	Apr 28–29	35	107.5 (100–115)	4.5 (3.5–5.6)	1
	May 1–2	36	108.5 (100–115)	4.4 (3.4–5.4)	2
	May 5–6	35	110.3 (104–118)	4.2 (3.4–5.0)	3
	May 8–9	36	109.6 (102–117)	4.3 (3.5–5.6)	4
	May 12–13	35	111.2 (105–119)	4.2 (3.3–5.4)	5
	May 15–16	34	112.9 (102–119)	4.0 (3.0–5.2)	6
	May 19–20	31	113.4 (108–119)	3.9 (3.1–5.0)	7
OR	Apr 28–29	36	108.2 (102–117)	4.5 (3.6–5.3)	1
	May 1–2	36	108.5 (102–115)	4.5 (3.5–5.6)	2
	May 5–6	36	108.6 (100–118)	4.5 (3.4–5.6)	3
	May 8–9	36	110.4 (104–118)	4.2 (3.5–5.1)	4
	May 12–13	36	111.8 (104–120)	4.2 (2.9–5.8)	5
	May 15–16	35	113.3 (105–119)	4.0 (3.0–5.2)	6
	May 19–20	32	112.3 (101–119)	3.9 (3.2–5.3)	7

tanks designed to guard against fluctuations in water temperature and DO. Transport to the release site took approximately 45–60 min. At the release site, tagged fish were held in either 1-m³ net pens (3-mm mesh; first release in 2009) or in perforated 121.1-L plastic garbage cans (2010) for a minimum of 24 h before release.

In 2009, all fish were released on the San Joaquin River at Durham Ferry, located at approximately rkm 110 (measured from the river mouth at Chipps Island) approximately 20 km upstream of the boundary of the study area (Mosscdale Bridge; Figure 1). The release site was located upstream of the study area to allow fish to recover from handling and distribute naturally in the river channel before entering the study area. In 2010, each of seven release occasions consisted of an initial release at Durham Ferry and two supplemental releases, one located in the Old River near the junction with the San Joaquin River

and the other located in the San Joaquin River near the city of Stockton (Figure 1). The supplemental releases were designed to provide enough tagged fish in the lower reaches of the study area to estimate survival all the way to Chipps Island, even if survival was low from Durham Ferry.

For each study year, an in-tank tag life study was performed to measure the rate of tag failure under the tag operating parameters (i.e., encoding, range, and pulse width) used in the study. Stratified random sampling of tags across manufacturing lots and tag codes was used to ensure that tags in the tag-life study represented the population of tags released in study fish.

In both study years, tag effects on short-term (48-h) survival were assessed using dummy (i.e., inactive)-tagged and untagged fish that were handled using the same procedures as fish with active transmitters. No significant difference in survival was observed between dummy-tagged and untagged fish over the

48-h period (SRJGA 2010, 2011). Tag effects on longer-term (≤ 21 d) survival and predator avoidance were expected to be small based on existing studies on effects of acoustic tags on juvenile Chinook Salmon with comparable tag burden (e.g., Anglea et al. 2004).

Water temperatures at the release locations were $< 20^{\circ}\text{C}$ during most releases, ranging from 16.1°C to 21.1°C in 2009 and from 14.2°C to 18.8°C in 2010. Temperature increased as a function of distance downstream from Durham Ferry in both the San Joaquin River main stem and the Delta and increased throughout the season. Temperatures in the study area exceeded 20°C starting in mid-May in 2009 and in early June in 2010.

Hydrophone placement.—An extensive array of acoustic hydrophones and receivers was deployed throughout the Delta in each study year, with 19 receivers and hydrophones being deployed in 2009 and 32 receivers (35 hydrophones) in 2010 (Figure 1). Acoustic receivers were named according to migration route (A–G). Chippis Island, the final destination of all routes in 2010, was assigned its own route name (G). At each location, one to four hydrophones were deployed to achieve full cross-sectional coverage of the channel.

Acoustic receivers were located at the Delta entrance (Mossdale, site A2) in both 2009 and 2010, at the Delta exit (Chippis Island, G1) in 2010, and at key points in between in both years (Figure 1). The Mossdale site was moved 1.4 km downstream in 2010 to an acoustically quieter site. All available migration routes were monitored at the Old River (sites A3 and B1) and Turner Cut (A6 and F1) diversions from the San Joaquin River (Figure 1). Receivers were located on the San Joaquin River in Stockton near the Stockton Waste Water Treatment Facility (A4) and near the Navy Drive Bridge just upstream of the Stockton Deep Water Ship Channel (A5) because of concern about salmon survival past the water treatment plant. Receivers were also located at the entrance to the state and federal water export facilities on the Old River (Figure 1). At the federal facility (Central Valley Project, CVP), receivers were placed just upstream and downstream of the trash racks (E1) and in the holding tank (E2), where salvaged fish were held before transportation by truck to release sites in the lower Delta on the San Joaquin and Sacramento rivers (R). At the state facility, receivers were placed both outside (D1) and inside (D2) the radial entrance gates to the Clifton Court Forebay (CCF), the reservoir from which the State Water Project draws water. Both the CVP trash racks and the CCF radial gates are known feeding areas for piscine predators (Vogel 2010, 2011). Receivers were also located downstream in the Old (B3) and Middle (C2) rivers near the Highway 4 bridge. Dual receiver arrays were placed at some sites to provide data to estimate detection probabilities, typically at the downstream boundary of the study area and at sites just downstream of river junctions. Both acoustic lines within each dual array (average 0.3 km apart) were designed for full coverage of the channel. The nonphysical barrier located at the head of the Old River was evaluated via a separate network of hydrophones that were not used in the VAMP study (Bowen et al. 2009; Bowen and Bark 2012).

The locations of the hydrophones were dictated by the possible migration routes (San Joaquin [A], and Old River [B]) and subroutes, and by the two spatial scales on which inference was to be made (Southern Delta and Delta). The acoustic receivers located in Turner Cut (F1) and at the channel markers in the San Joaquin River near the Turner Cut junction (A6) monitored the exit of the San Joaquin route through the Southern Delta region in both 2009 and 2010 (Figure 1a). Likewise, the exit of the Old River route through the Southern Delta region was monitored by receivers at the state and federal water facilities and near Highway 4 in both 2009 and 2010 (Figure 1b). In 2010, the exit of both the San Joaquin route (Figure 1c) and the Old River route (Figure 1d) through the entire Delta region was monitored by dual receivers at Chippis Island.

Signal processing.—The raw tag detection data generated by the acoustic telemetry receivers were processed by identifying the date and time of each tag detection. Unique tags were identified by the period (1/frequency) of the acoustic signal. The 2009 data were processed manually using the HTI proprietary software *MarkTags*. The 2010 data were processed using a combination of automatic and manual processing, manual processing being limited to key detection sites (SJRG 2011).

The San Joaquin River Delta is home to several populations of predatory fish that are large enough to feed on juvenile salmonids, including Striped Bass, Largemouth Bass, and White Catfish. A predatory fish that has eaten an acoustic-tagged juvenile salmon and then moves past a hydrophone may introduce misleading tag detections into the data. Thus, it was necessary to identify and remove those detections that came from predators. Likely predator detections were identified in a decision process that used up to three levels of spatial-temporal analysis, based on the methods of Vogel (2010, 2011): near-field, mid-field, and far-field. Near-field analysis required manual processing of the raw acoustic telemetry data, and interpreted the pattern of the acoustic signal during detection as an indicator of fish movement near the receiver. Mid-field analysis focused on residence time within the detection field of each receiver, and transitions between neighboring receivers. Far-field analysis examined transitions on the scale of the study area. All available detection data were considered in identifying likely predator detections, as well as environmental data such as river flow and tidal stage, measured at several gaging stations throughout the Delta (downloaded from the California Data Exchange Center Web site: <http://cdec.water.ca.gov>). The predator decision process was based on the assumptions that Chinook Salmon smolts were emigrating and so were directed downstream, and that they were unlikely to move between acoustic receivers (≥ 2 km) against river flow. Movements directed upstream against the flow were considered evidence of predation, although short-term upstream movements under reverse flow or slack tide conditions were deemed consistent with a salmon smolt. Unusually fast or slow transitions between detection sites or particularly long residence time at a detection site were also considered evidence of predation. In 2009, the near-field analysis comprised the majority of the predation decision process. In 2010, more emphasis

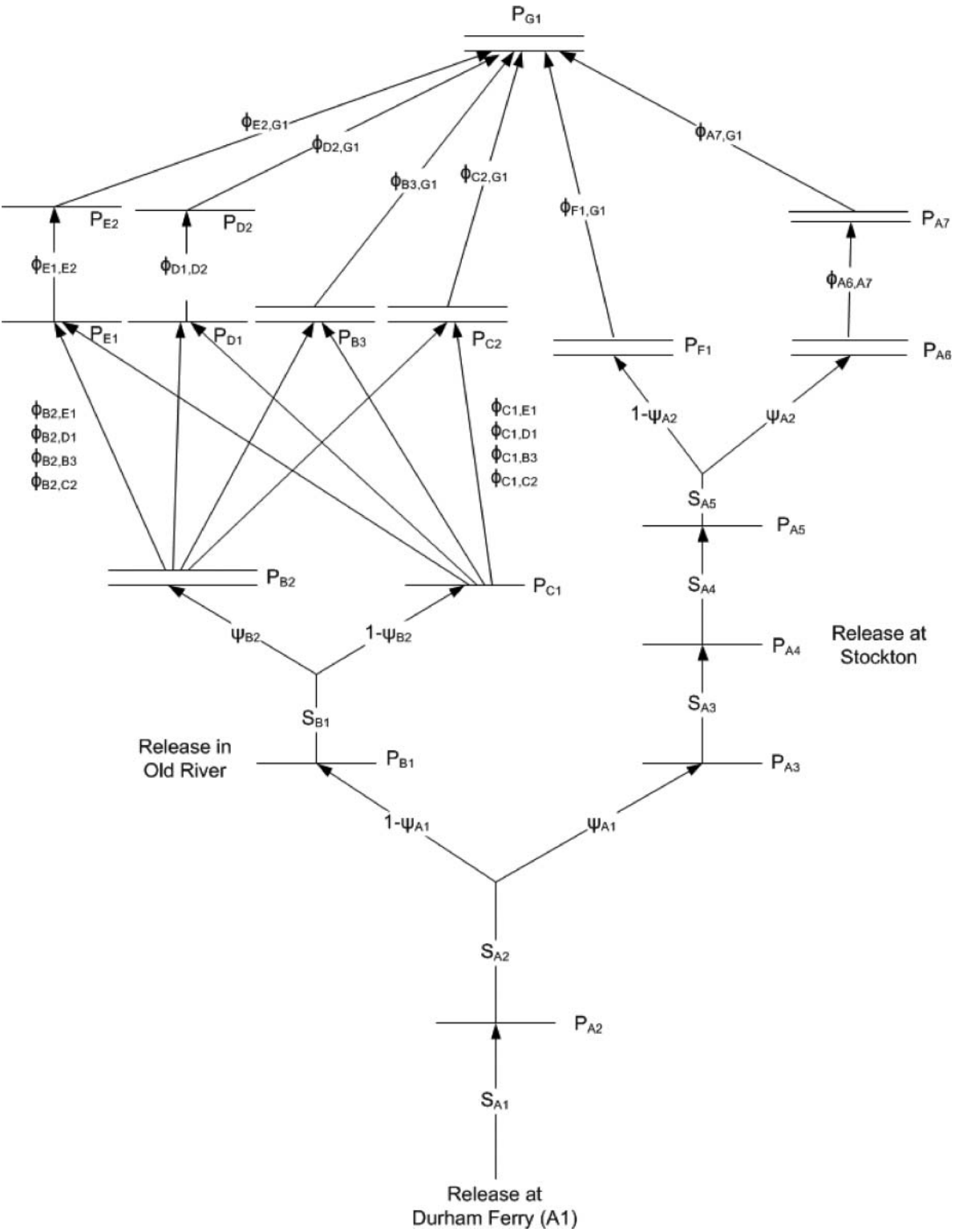


FIGURE 3. Model schematic for the 2010 Chinook Salmon smolt tagging study. See Figure 2 for additional information.

possible routes between the two sites and was used when it was not possible to separately estimate the route entrainment and survival probabilities. Unique transition parameters were estimated at receiver D1 located outside the radial gates of the Clifton Court Forebay depending on gate status at the time of fish arrival (open or closed) in the 2010 study. Gate status data were unavailable for the 2009 study.

In some cases, it was not possible to separately estimate the transition probability to a site and the detection probability at the site. This occurred primarily at the entrances to the water export facilities (E1 = CVP trash racks, and D1 = first CCF receiver) due to sparse data. In these cases, the joint probability of survival from the previous receiver to receiver i in route h was estimated as $\lambda_{hi} = \phi_{kj,hi} P_{hi}$. We assumed that the detection probability was 100% at the radial gate receivers inside Clifton Court Forebay and in the holding tank at the Central Valley Project. These assumptions, necessary in the absence of receivers located downstream of those detection sites and unique to those routes, were reasonable as long as the receivers were operating.

A multinomial likelihood model was constructed based on possible capture histories under the assumptions of common survival, route entrainment, and detection probabilities and independent detections among the tagged fish in each release group. The likelihood model was fit using maximum likelihood in the software Program USER (Lady and Skalski 2008), providing point estimates and standard errors of model parameters and derived performance measures.

In addition to the model parameters, performance at the migration route level was estimated as functions of the model parameters. The probability of a smolt taking the San Joaquin River route (route A) was ψ_{A1} , while the probability of using the Old River route (route B) was $1 - \psi_{A1}$. Regional passage survival (S_R for region R) was estimated on two spatial scales: the southern Delta ($R = SD$; 2009 and 2010) and the entire San Joaquin River delta ($R = D$) from Mossdale Bridge to Chipps Island (2010) (Figure 1). Regional passage survival for region R ($R = SD$ or D) was defined in terms of both the route entrainment probability (ψ_{A1}) and the route-specific survival probabilities:

$$S_R = \psi_{A1} S_{A(R)} + (1 - \psi_{A1}) S_{B(R)}.$$

The route-specific survival probabilities through region R (i.e., $S_{A(R)}$ and $S_{B(R)}$ for $R = SD$ or D) were defined as

$$S_{A(R)} = S_{A2} S_{A3} S_{A4} S_{A5(R)}$$

and

$$S_{B(R)} = S_{A2} S_{B1} S_{B2(R)}.$$

The survival probabilities through the final reaches of each route (i.e., $S_{A5(R)}$ and $S_{B2(R)}$) were defined as

$$S_{A5(R)} = \begin{cases} S_{A5}, & \text{for } R = SD \\ S_{A5}(\psi_{A2}\phi_{A6,A7}\phi_{A7,G1} + [1 - \psi_{A2}]\phi_{F1,G1}), & \text{for } R = D \end{cases}$$

and

$$S_{B2(R)} = \begin{cases} \phi_{B2,B3} + \phi_{B2,C2} + \phi_{B2,D1} + \phi_{B2,E1}, & \text{for } R = SD \\ \phi_{B2,B3}\phi_{B3,G1} + \phi_{B2,C2}\phi_{C2,G1} + \phi_{B2,D1}\phi_{D1,D2}\phi_{D2,G1} + \phi_{B2,E1}\phi_{E1,E2}\phi_{E2,G1}, & \text{for } R = D. \end{cases}$$

For fish that reached the interior receivers at the Clifton Court Forebay or CVP in 2010, the parameters $\phi_{D2,G1}$ and $\phi_{E2,G1}$ included survival during and after collection and transport. Although a subroute of the Old River route to Chipps Island, through Middle River from the junction with the Old River (subroute C) was monitored in 2010, no salmon were observed leaving the Old River at that junction (site C1). Thus, the probability of a smolt taking the Middle River route to Chipps Island was estimated to be zero.

In 2009, release groups were pooled into three strata based on release timing, common environmental conditions, and monitoring equipment status: stratum 1 = releases 1–2, stratum 2 = releases 3–6, and stratum 3 = release 7 (Table 1). Malfunctioning acoustic receivers meant that some parameters could not be estimated for some strata. Model selection was used to assess the effect of stratum on model parameters common to multiple strata. In 2010, data from each of the seven release occasions (initial release at Durham Ferry combined with supplemental releases) were analyzed separately. For each release occasion, several alternative survival models were fit, differing in whether the initial (Durham Ferry) and supplemental release groups shared common detection, route entrainment, and survival parameters over common reaches. Model selection was used to find the most parsimonious model that fit all the data, following the general approach described in Burnham et al. (1987) for comparing treatment groups. Detection probabilities were parameterized first, with survival, transition, and route entrainment probabilities parameterized next. Backwards selection was used to identify the farthest reach upstream for which parameters from the initial and supplemental releases could be equated without reducing model fit. The most general models were considered first, with unique parameters for each release group for all reaches, and tested against simpler models with common parameters across the initial and supplemental release groups for the downstream reaches. All models used unique survival and transition probabilities in the first reach downstream of the supplemental release sites. Model selection was performed using the Akaike Information Criterion (AIC) as described in Burnham and Anderson (2002). Final parameter estimates were weighted averages of the release-specific estimates from the selected model, with weights equal to the

number of fish from the release group present at the supplemental release site (estimated for the initial release group). Goodness of fit was assessed using Anscombe residuals (McCullagh and Nelder 1989; p. 38).

RESULTS

2009 Results

None of the 50 tags in the 2009 tag-life study failed before day 21. Because all detections of tagged salmon smolts occurred well before day 21 after tag activation, no adjustment for tag failure was made to the survival estimates from the release–recapture model.

Initial survival after release was low in 2009, with estimates of survival from Durham Ferry to the Mossdale Bridge (site A2, approximately 20 rkm) averaging 0.47 ($SE = 0.02$). The majority of the acoustic-tag detections downstream of Durham Ferry were at the upstream sites in the San Joaquin (A2, A3) and in the Old River (B1). Very few tagged salmon smolts were detected at the exit points of the Southern Delta region in either the San Joaquin River route or the Old River route. No tagged salmon were detected at the Turner Cut receivers (F1), the Middle River receivers at Highway 4 (C2), or the interior receivers at Clifton Court Forebay (D2).

Total salmon survival through the Southern Delta region (S_{SD}) was estimable only for stratum 2 (releases 3–6) because the failure of certain acoustic receivers resulted in missing data from the three other release groups. Estimated route-specific survival through the Southern Delta was $\hat{S}_{A(SD)} = 0.05$ ($SE = 0.02$) in the San Joaquin route and $\hat{S}_{B(SD)} = 0.08$ ($SE = 0.02$) in the Old River route (Table 2). Survival estimates through the Southern

Delta in the two routes were not significantly different (Z-test, $P = 0.4788$). The route entrainment probabilities at the junction of the Old River with the San Joaquin River were estimated at $\hat{\psi}_{A1} = 0.47$ ($SE = 0.03$) for the San Joaquin River, and $1 - \hat{\psi}_{A1} = 0.53$ ($SE = 0.03$) for the Old River. Consequently, overall survival through the Southern Delta in 2009 was estimated as $\hat{S}_{SD} = 0.06$ ($SE = 0.01$; Table 2).

The first two release groups in 2009 (stratum 1) showed a higher probability of entering the Old River ($1 - \hat{\psi}_{A1} = 0.64$; $SE = 0.04$) than remaining in the San Joaquin ($P = 0.0002$). Release groups 3–6 (stratum 2) showed no preference for either route ($P > 0.05$), with $1 - \hat{\psi}_{A1} = 0.48$ ($SE = 0.04$) for the Old River route entrainment probability. No estimates of the route entrainment probabilities were available for group 7 (stratum 3) because of equipment malfunction.

Median travel time through the Southern Delta reaches ranged from 0.2 d ($SE = 0.2$) from the Stockton USGS gauge (A4) to the Navy Drive Bridge in Stockton (A5; approximately 3 km), to 2.1 d ($SE = 0.3$) from Lathrop (A3) to the Stockton USGS gauge (A4; approximately 15 km).

2010 Results

Failure times of the 48 tags in the tag-life study ranged from 10 to 36 d. The early failure of several tags in the tag-life study made it necessary to incorporate tag-life adjustments into survival estimates (Townsend et al. 2006). The estimated probability of tag survival to the time of arrival at each detection site ranged from 0.987 to Chipps Island (G1) to 0.995 to Mossdale (A2). Tag survival estimates for the supplemental releases at the Old River and Stockton were generally higher than for the initial releases at Durham Ferry.

TABLE 2. Estimates of route-specific survival (S ; standard errors in parentheses) of Chinook Salmon smolts through the Southern Delta (SD) and the entire Delta to Chipps Island (D) in the San Joaquin River (A) and Old River (B) and route entrainment probability into the San Joaquin River (A) at the head of the Old River for study years 2009 and 2010. Estimates of survival through the entire Delta are not available for 2009.

Release date	Route entrainment $\hat{\psi}_{A1}$	Southern Delta survival			Entire Delta survival		
		$\hat{S}_{A(SD)}$	$\hat{S}_{B(SD)}$	\hat{S}_{SD}	$\hat{S}_{A(D)}$	$\hat{S}_{B(D)}$	\hat{S}_D
Study year 2009							
Apr 22–25	0.36 (0.04)						
Apr 29–May 9	0.52 (0.04)	0.05 (0.02)	0.08 (0.02)	0.06 (0.02)			
May 13				0.05 (0.03)			
Average	0.47 (0.03)	0.05 (0.02)	0.08 (0.02)	0.06 (0.01)			
Study year 2010							
Apr 27–29	0.48 (0.06)	0.47 (0.07)	0.78 (0.06)	0.63 (0.05)	0.07 (0.03)	0.00 (0.00)	0.03 (0.02)
Apr 30–May 2	0.44 (0.06)	0.40 (0.06)	0.90 (0.04)	0.68 (0.05)	0.01 (0.01)	0.03 (0.02)	0.02 (0.01)
May 4–6	0.39 (0.06)	0.16 (0.04)	0.75 (0.06)	0.52 (0.06)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
May 7–9	0.52 (0.07)	0.24 (0.05)	0.56 (0.09)	0.39 (0.06)	0.04 (0.02)	0.10 (0.03)	0.06 (0.02)
May 11–13	0.45 (0.06)	0.49 (0.06)	0.88 (0.08)	0.71 (0.06)	0.06 (0.03)	0.13 (0.04)	0.10 (0.03)
May 14–16	0.43 (0.06)	0.11 (0.04)	0.68 (0.29)	0.43 (0.17)	0.01 (0.01)	0.07 (0.02)	0.05 (0.02)
May 18–20	0.59 (0.07)	0.35 (0.06)	0.83 (0.21)	0.55 (0.10)	0.07 (0.03)	0.15 (0.05)	0.10 (0.03)
Average	0.47 (0.02)	0.32 (0.02)	0.77 (0.06)	0.56 (0.03)	0.04 (0.01)	0.07 (0.01)	0.05 (0.01)

All releases in the 2010 study had high initial survival, with estimates of survival from Durham Ferry to the Mossdale Bridge receiver (site A2; approximately 21 km) averaging 0.94 (range = 0.86–1.00). The Old River supplemental release groups had an average estimated survival to the head of Middle River (sites B2, C1) of 0.89 (range = 0.84–0.97). The Stockton supplemental release groups had an average estimated survival to the Navy Bridge in Stockton (site A5) of 0.82–1.07 (average = 0.95). Only a single tag released at either Durham Ferry or the Old River was detected in Middle River, so Middle River was omitted from the survival model. None of the 14 tags detected at Turner Cut were subsequently detected at Chipps Island.

Estimates of the probability of fish remaining in the San Joaquin River at the head of the Old River in 2010 ranged from 0.39 to 0.59 across the seven release groups (average = 0.47; $SE = 0.02$; Table 2). Only for release 3 did fish show a statistically significant ($\alpha = 0.05$) preference for the Old River over the San Joaquin River ($P = 0.0443$; one-sided Z-test).

Route-specific survival through the Southern Delta region in 2010 had an average estimate of $\hat{S}_{A(SD)} = 0.32$ ($SE = 0.02$) in the San Joaquin route and $\hat{S}_{B(SD)} = 0.77$ ($SE = 0.05$) in the Old River route. For each release occasion, survival through the Southern Delta was significantly higher in the Old River route ($P \leq 0.003$; one-sided Z-test on the lognormal scale), which ended at the water export facilities and Highway 4. Combined salmon survival through the Southern Delta region in 2010 was estimated at $\hat{S}_{SD} = 0.56$ ($SE = 0.03$), averaged over all seven release groups (Table 2).

Survival through the entire San Joaquin River Delta region (from Mossdale to Chipps Island, approximately 89 km) was considerably lower than through only the Southern Delta region in 2010, the average overall estimate being $\hat{S}_D = 0.05$ ($SE = 0.01$; Table 2). Estimated survival from Mossdale to Chipps Island averaged $\hat{S}_{A(D)} = 0.04$ ($SE = 0.01$) in the San Joaquin route, and $\hat{S}_{B(D)} = 0.07$ ($SE = 0.01$) in the Old River route. Only the first release group showed a significant difference in survival to Chipps Island between the two routes, survival through the San Joaquin route ($\hat{S}_{A(D)} = 0.07$, $SE = 0.31$) being higher than through the Old River route ($\hat{S}_{B(D)} = 0.00$, $SE = 0$; $P = 0.0100$; Table 2). Lack of significance for other release groups may have been a result of low statistical power. Pooled over release groups, however, estimated survival to Chipps Island was significantly higher through the Old River route than through the San Joaquin River route ($P = 0.0133$).

For tags released at Durham Ferry, the median travel time through the reaches ranged from 0.1 d ($SE = 0.01$) between the two Stockton receivers (A4 to A5; approximately 3 km) to 3.2 d ($SE = 0.5$) from Medford Island (A7) to Chipps Island (G1); of the multiple paths between A7 and G1, the path that used only the San Joaquin River was approximately 46 km long. No tags were observed to move from Turner Cut to Chipps Island, and the median transition from Old River South (B2) to the CVP trash racks (E1) was 0.9 d ($SE = 0.1$).

Among the 29 salmon released at Durham Ferry in 2010 that were subsequently detected at Chipps Island, 31% (9 fish) used the San Joaquin route and 69% used the Old River route. The median travel time from the head of the Old River to Chipps Island was 5.7 d (migration rate = 14.0 km/d) through the San Joaquin route, compared with 7.2 d (7 km/d) for the single fish in the Old River route that migrated in-river past Highway 4, and 2.6 d for the 19 fish in the Old River route that passed through the Central Valley Project. Travel time for the CVP fish included time spent in holding tanks and truck transport to release sites just upstream of Chipps Island, as part of the salvage operation at the facility. It appears that the fastest route through the San Joaquin River Delta to Chipps Island in 2010 was through the Old River and the CVP.

DISCUSSION

The results of 2 years of acoustic-tagging studies reported here shed light on the survival of juvenile fall Chinook Salmon in the San Joaquin River Delta. Although estimated survival was considerably higher in 2010 than in 2009, overall survival was low in both years, and survival and migration rates tended to be higher upstream and lower downstream. This pattern was observed throughout the Southern Delta in both 2009 and 2010 and throughout the entire Delta in 2010. Some reduction in migration rate is expected as fish move downstream because the cyclic tidal environment may reverse the direction of river flow and temporarily push smolts upstream. Slower migration rates, in turn, may lead to lower survival in downstream reaches, with slower-moving smolts being less able to evade predators (Anderson et al. 2005).

When survival estimates were adjusted for reach length (i.e., survival rate = $\hat{S}^{(km^{-1})}$), two regions displayed consistently low survival rates. The San Joaquin River reach from the receiver near the Navy Drive Bridge in Stockton to the Turner Cut junction had an estimated survival rate of 0.85 in 2009 and 0.94 in 2010. The reaches in the southwestern portion of the Old River route (i.e., from the head of Middle River to the entrances of the CVP and Clifton Court Forebay and to the Old River at Highway 4) had comparable survival rate estimates in both years, ranging from 0.83 to 0.90 in 2009 and 0.94–0.95 in 2010. All other Southern Delta reaches had higher estimated survival rates, while the only reach in the full Delta study area with lower survival rate was the San Joaquin River reach from the Turner Cut junction to Medford Island (0.86 in 2010). The San Joaquin River reaches from Stockton to the Turner Cut junction and Medford Island and the western portions of the Old River route warrant further investigation into mortality factors.

The estimated probability of survival throughout the Southern Delta region was generally higher in 2010 than in 2009 in both the San Joaquin River route and the Old River route. In particular, survival in the Old River from the junction with Middle River to the entrance of the water export facilities and Highway 4 appeared considerably higher in 2010 (average estimate = 0.92)

than in 2009 (average = 0.16). Overall, the survival estimates through the Southern Delta region in 2009 (average = 0.06) were comparable to the survival estimates through the entire Delta region in 2010 (average = 0.05). Although no direct estimates of survival through the entire Delta were available in 2009, we can conclude that total survival was <0.06 . The drop in survival in 2010 from the Southern Delta (0.56) to the entire Delta (0.05) suggests that total survival through the entire Delta in 2009 may have been as low as 0.005. Even considering the uncertainty inherent in the predator decision process, we can conclude that survival through the Delta was very low in 2009. If the survival probability estimated in 2009 was similar to survival in other low-flow years, current recovery efforts for San Joaquin River Chinook Salmon may be inadequate during dry years.

Despite interannual survival differences, the average estimated probability of fish entering the Old River from the San Joaquin (0.53) did not differ between 2009 and 2010. This route's entrainment probability was estimated in the presence of the nonphysical barrier operated at the head of the Old River. The barrier was found to be effective at deterring smolts from entering the Old River in 2010, but not in 2009 (Bowen et al. 2009; Bowen and Bark 2012, "protection efficiency"). Nevertheless, the effect of the barrier on the overall VAMP study results was limited because the barrier was operated only for approximately half of each release group, and estimates of the Old River route entrainment probability probably decreased by <0.1 because of the barrier study.

The 2009 and 2010 survival estimates reported here depend partly on the decision process used to identify and remove possible predator detections. Without removing any suspect detections, overall survival through the Southern Delta region would be estimated at 0.34 in 2009 and 0.79 in 2010 and at 0.11 through the entire Delta region in 2010. Thus, estimated survival would be higher in both years, but the comparisons between 2009 and 2010 and between the Southern Delta and the entire Delta would remain. However, many of the detections producing these higher survival estimates came from tags with considerably longer residence times (e.g., up to 810 h) or longer travel times than expected for emigrating juvenile salmonids (e.g., average residence time of approximately 0.5 h at most detection sites). Additionally, the fit of the statistical survival model declined when the presumed predator detections were included, suggesting that they were unlikely to have come from emigrating salmonids. The results presented here are based on our current understanding of behavior differences between juvenile salmon and predators such as striped bass. Nevertheless, more work needs to be done to develop methods for distinguishing between detections of salmon and detections of predators, especially for acoustic tagging studies in highly complex environments such as the Delta.

There are several possible explanations for the differences in Southern Delta survival observed between 2009 and 2010. River flows in 2009 were very low, whereas 2010 had considerably higher flows (Figure 4). Water exports from the federal and state

export facilities occurred at a slightly higher and more variable rate in 2009, the combined average export level being $56.4 \text{ m}^3/\text{s}$ (range = $38.2\text{--}73.3 \text{ m}^3/\text{s}$; SJRGA 2010). In 2010, the combined average export level was $43.0 \text{ m}^3/\text{s}$ (range = $37.4\text{--}44.2 \text{ m}^3/\text{s}$) (SJRGA 2011). Both lower flows and higher exports may have contributed to the lower survival observed in 2009, although the difference in average export level between 2009 and 2010 is small compared with possible daily variation in export levels ($42.5\text{--}322.8 \text{ m}^3/\text{s}$). Differences in the source and condition of the study fish may also have contributed to performance differences between the 2 years. The 2009 study fish were hybrids of spring and fall-run Chinook Salmon from the Feather River Fish Hatchery (FRH), located in the Sacramento River basin. These hybrid fish tended to be smaller than the 2010 study fish, which were fall-run Chinook Salmon from the Merced River Fish Hatchery (MRH; located in the San Joaquin River basin). Historically, experiments in the San Joaquin Delta have used MRH fish. In 2009, however, low numbers of MRH fish prompted the switch to the FRH for that year's tagging study, despite concern that FRH fish (genetically from the Sacramento River) may not adequately represent survival of San Joaquin fall-run Chinook Salmon (Brandes and McLain 2001). In 2010, rebounding numbers at the MRH allowed us to return to MRH fish for that year's tagging study.

The smaller size of the 2009 fish resulted in an average tag burden that was higher than in 2010, and also higher than desired ($\leq 5.5\%$; Brown et al. 2006). The higher tag burden in 2009 may have contributed to the high mortality in the first reach after release (Durham Ferry to Mossdale Bridge), where an estimated 53% of study fish died in 2009. However, differences in river conditions and predator distribution may also have contributed to differences in estimated mortality in this reach between the 2 years. Dry conditions and low flows in 2009 may have concentrated predators and prey (smolts) in a smaller volume of water. Higher water temperatures in 2009 may have kept the predators more active (e.g., Niimi and Beamish 1974), and also more likely to reside in the San Joaquin River between Durham Ferry and Mossdale Bridge, where water temperatures tend to be cooler than in the Delta.

Despite the differences in survival between the 2009 and 2010 study years, both studies found that juvenile fall run Chinook Salmon have very low survival through the San Joaquin River Delta, well under 0.10. Our 2010 estimates were similar to the lower range of previous survival estimates of San Joaquin smolts based on CWT data (Brandes and McLain 2001). However, the extremely low survival potentially experienced through the Delta in 2009 would have been lower than the lowest CWT estimates. Even the higher survival observed in 2010 was considerably lower than survival estimates of juvenile late fall-run Chinook Salmon from the Sacramento River through the Delta, which ranged from 0.35 to 0.54 in the winter of 2007 (Perry et al. 2010). The Perry study used comparable methods, with similar study design, tagging, and analysis. However, the late fall run Chinook Salmon used in

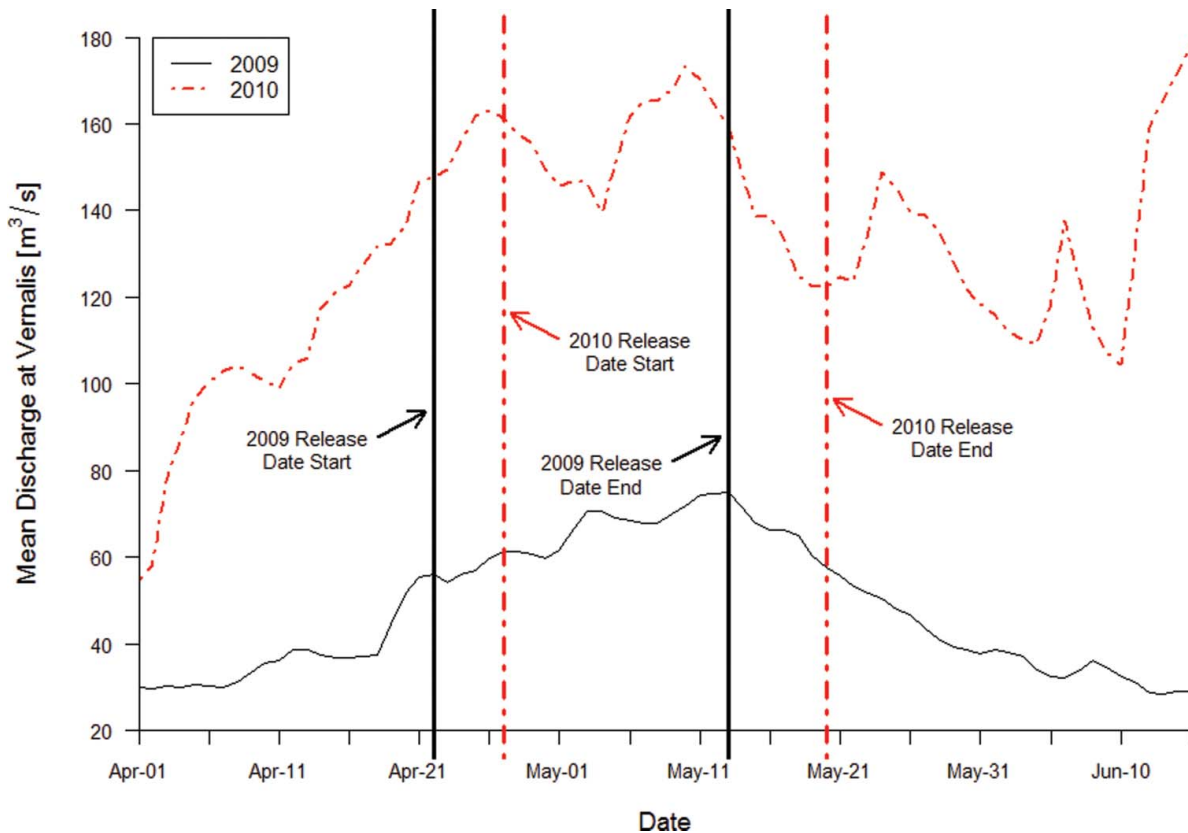


FIGURE 4. Mean daily discharge of the San Joaquin River at the U.S. Geological Survey gauge near Vernalis, California (rkm 113 from Chipps Island), during Chinook Salmon tagging studies in 2009 and 2010. [Figure available in color online.]

the Perry study migrate in winter, whereas the fall-run Chinook Salmon used in the VAMP study migrate months earlier in spring. Thus, not only were the VAMP fish smaller than the Perry study fish, they also migrated when higher predator activity is expected because of warmer temperatures and the striped bass spring spawning migration (Radtke 1966). Thus, there are several possible explanations why the VAMP study may be expected to estimate lower survival than the Perry study.

Estimates of juvenile Chinook Salmon survival through comparable environments in other basins tend to be higher than those observed in the 2009 and 2010 VAMP studies. McMichael et al. (2010) used acoustic tags to estimate survival of Chinook salmon smolts through the lower 192 rkm of the Columbia River to the river mouth; scaled by distance, the survival rate estimates ($\hat{S}^{(km^{-1})}$) were 0.999 for yearlings and 0.998 for subyearlings. Acoustic-tagged spring Chinook Salmon from the Thompson–Fraser river system had estimated survival rates of 0.989–0.997 (average = 0.995) through more than 330 rkm to the Fraser River mouth in 2004–2006 (Welch et al. 2008). These survival rates are considerably higher than both the VAMP-estimated Southern Delta survival rate of 0.92 in 2009 and the estimated entire Delta survival rate of 0.97 in 2010. Even the lowest survival rate estimate reported by Welch et al. (2008) for the Fraser River (0.989 in 2004) corresponds to much higher total survival

over a distance comparable to the VAMP study area (approximately 89 rkm). Over this distance, a population with a survival rate of 0.989/km would have an overall survival probability of 0.37, as opposed to the 2010 estimate of 0.05. Although direct comparison with other basins is difficult, it appears that the salmon smolts used in the 2009 and 2010 VAMP studies are not surviving as well on their seaward migration as other salmon population on the western coast of North America.

Part of the VAMP is a management plan based on the assumption that salmon survival to Chipps Island is higher through the San Joaquin River route than through the Old River route. This assumption is based on CWT studies between 1985 and 1990 that consistently found higher (but not statistically significant) point estimates of survival for smolts released in the San Joaquin River downstream of the Old River than for those released in the Old River (Brandes and McLain, 2001). Modeling of these data and other CWT data indicated that keeping salmon out of the Old River improved their survival (Newman 2008). The 2008 VAMP acoustic tag study results, although hampered by a high degree of premature tag failure, suggest that survival to Chipps Island was also higher through the San Joaquin River than through the Old River route in 2008 (Holbrook et al. 2009). Furthermore, there is evidence that salmon from the Sacramento River have a higher probability of reaching Chipps Island if they

remain in the Sacramento River rather than entering the central Delta (Newman and Brandes 2010, Perry et al. 2010). Since the 1990s, management has experimented with efforts to keep fish in the San Joaquin River and out of the Old River by installing a barrier (physical or nonphysical) at the head of the Old River. Our results suggest that prevailing ideas about relative survival in the two routes may be too simple, given that we found no conclusive evidence that survival was higher in the San Joaquin River route than in the Old River route. One difference between the 2009 and 2010 study years and previous years was the switch from a physical barrier to testing a nonphysical barrier at the head of the Old River in 2009 and 2010. Historically, the physical barrier at the Old River routed both fish and river flow into the San Joaquin River (SJRG 2005). In contrast, the nonphysical barrier used in 2009 and 2010 routed fish but not flow into the San Joaquin (Bowen et al. 2009; Bowen and Bark 2012). With salmon smolt survival in the San Joaquin River thought to increase with flow (SJRG 2007), it is possible that the nonphysical barrier deprived smolts routed to the San Joaquin River of the increased flows necessary for improved survival (Perry et al. 2013). There is also a concern that the larger in-water structure associated with the nonphysical barrier may create habitat for increased predation at the site. More study is needed.

The San Joaquin River Delta represents just a small portion of the entire juvenile out-migration of San Joaquin Chinook Salmon and in recent years has typically been traversed in <2 weeks (SJRG 2011; Holbrook et al. 2013). With survival through only a portion of the juvenile migration estimated at <0.10, management efforts in the lower San Joaquin River and Delta must be more protective if salmon populations are to persist in this region. However, effective management must be based on a better understanding of the factors influencing mortality than is currently available. More research into salmon use of and survival in the Delta is needed, especially in dry years that may represent future conditions under climate change. In light of increasing human demands for Central Valley water, it is unlikely that salmon survival will improve on its own. If the survival estimates observed in these two studies are representative of the future, only extreme measures have a chance of saving San Joaquin River Chinook Salmon.

ACKNOWLEDGMENTS

Many people and groups were involved in designing and implementing the VAMP study. We thank Natural Resource Scientists, Inc., California Department of Fish and Game, California Department of Water Resources, the U.S. Fish and Wildlife Service (Stockton office), the U.S. Bureau of Reclamation, Normandeau and Associates (Stevenson, Washington), and the U.S. Geological Survey (Columbia River Research Lab and Sacramento office) for their contributions to the study. We also thank Mark Bowen from the U.S. Bureau of Reclamation for access to detection data from the nonphysical barrier study at the head of the Old River, and three anonymous reviewers

for their helpful suggestions. Funding for the VAMP study was provided by the signatories to the San Joaquin River Agreement, and funding for analysis and manuscript preparation was provided by the San Joaquin River Group Authority.

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**THE VERNALIS ADAPTIVE MANAGEMENT PROGRAM (VAMP):
REPORT OF THE 2010 REVIEW PANEL**

Panel Members:

- Dennis Dauble, Ph.D., Pacific Northwest National Laboratory, retired
- David Hankin (Chair), Ph.D., Humboldt State University
- John J. Pizzimenti, Ph.D., GEI Consultants Inc.
- Pete Smith, Ph.D., USGS, retired

May 13, 2010.

Prepared for the Delta Science Program

PART I. INTRODUCTION

Panel members were asked by the Delta Science Program to carry out an independent review of a 12-year VAMP (Vernalis Adaptive Management Plan) experimental program designed to develop water management measures that would provide protection to juvenile Chinook salmon migrating through the San Joaquin River system and associated Sacramento-San Joaquin River Delta (Delta) waterways. The Charge to the Panel was expressed as a series of three questions that the Panel was obligated to address:

- 1) Do the results to date from the VAMP study provide useful scientific information about the relationship between salmon survival and each of the following factors?
 - Flows,
 - Exports, and
 - Barrier installation at the head of Old River?
- 2) How can the results from the VAMP to date be used to inform the State Water Resources Control Board's (SWRCB) current efforts to review and potentially revise the San Joaquin River flow objectives and their implementation?
- 3) How can the experiences to date from the VAMP study be used in a scientific manner to inform future monitoring and study efforts related to determining appropriate flow, operational, and water quality requirements to protect San Joaquin River fisheries (specifically Chinook salmon and steelhead)?

The review process began with all panel members reviewing a set of pertinent reports and documents (see Appendix A). Review of these written documents was followed by a two-day workshop (2-3 March 2010; see Appendix B for Agenda) in Sacramento at which invited presentations on objectives, history and findings from VAMP-sponsored studies were made on the first day. In the morning of the second day of the workshop, Review Panel members met to consider their preliminary findings and observations which were presented to those attending the workshop during the afternoon of the second day. Panel members were able to provide preliminary responses to the first and third questions listed above, but were unable to determine how most appropriately to respond to the second question. For that reason, the Panel requested additional materials concerning the SWRCB water quality and water management planning as it relates to the VAMP program. These additional materials were received, via email, on 11 March 2010, and are included as Appendix D.

Following the workshop, the Panel Chair distributed a preliminary outline for a draft Review Panel Report and individual Panel members were identified to take lead responsibility for developing draft sections of the report as appropriate given their areas of expertise. Panel members circulated comments and suggested revisions via email, and used conference calls to develop a consensus regarding structure, format, and content of the report. This draft version of the report was submitted to Sam Harader, Delta Science Program, for distribution to solicit comments prior to preparation of the final report. This Final Report reflects our response to these comments.

Of the documents provided to the review panel prior to the workshop, we wish to take special note of the value of the 2008 VAMP Summary report (SJRTC 2008). This

report provided panel members with an excellent overview of the VAMP program to that time and provided context within which to place the other materials that the panel reviewed. We also wish to extend our thanks to all presenters at the workshop that was held as part of the review panel process. The presentations were well done and provided us with valuable information to conduct our review. We also thank Sam Harader of the Delta Science program who was very helpful in assisting with all the logistics of the review, from contracts to conference calls.

We have structured our report in a fashion which, we hope, will allow all readers to quickly develop a notion of our essential findings, concerns, and recommendations, but which will also allow interested readers to understand the logic that supports these conclusions. Following this Introduction, we provide an Executive Summary that consists of brief responses to each of the three questions that the review panel was obligated to address. Immediately thereafter, we provide supporting documentation or arguments for the responses that are provided in the Executive Summary. As we proceeded in our review, we felt that our review would not be complete unless we also noted certain concerns that we have regarding the VAMP program itself and related activities, and developed certain recommendations that we feel might improve the future performance of the VAMP program or might enhance survival of juvenile Chinook salmon in their freshwater migration to the ocean. Although such expressions of concerns and statements of recommendations were not explicitly requested in the Charge to the Panel, we hope that these additional thoughts will contribute to the VAMP review process. Remaining materials consist of References and several Appendixes, including brief biographical sketches for review panel members.

Although the charge to the panel was focused on identifying San Joaquin flows that best support survival of outmigrating Chinook salmon smolts, we found that this task was exceptionally difficult. Panel members are in agreement that simply meeting certain flow objectives at Vernalis is unlikely to achieve consistent rates of smolt survival through the Delta over time. The complexities of Delta hydraulics in a strongly tidal environment, and high and likely highly variable impacts of predation, appear to affect survival rates more than the river flow, by itself, and greatly complicate the assessment of effects of flow on survival rates of smolts. And overlaying these complexities is an apparent strong trend toward reduced survival rates at all flows over the past ten years in the Delta. Nevertheless, the evidence supports a conclusion that increased flows generally have a positive effect on survival and that it is desirable, to the extent feasible, to reduce or eliminate downstream passage through the Old River channel. The panel understands, of course, that flow, exports, and the placement of barriers in the Delta are the variables affecting survival that are most easily managed.

This review report is intended mostly for the Delta Science Program lead scientist, SWRCB, the VAMP Technical Committee, workshop attendees, and others that are familiar with the Delta and Central Valley salmon. Further information on the VAMP history, goals, objectives, and experimental design can be found in the VAMP summary report (SJRTC, 2008) and the many references listed at the end of this report.

PART II. EXECUTIVE SUMMARY

In this section we provide brief responses to the three specific questions which the review panel was asked to answer

1) Do the results to date from the VAMP study provide useful scientific information about the relationships between salmon survival and each of the following factors?

Flows

We provide a qualified “yes” response to this question.

Survival rates of juvenile Chinook salmon have been estimated from recoveries of coded-wire tagged (CWT) fish released (as pairs or sets of three distinct codes) from 1989 through 2006. Two distinct statistical analyses provide evidence in support of a positive relationship between flow and survival of downstream-migrating Chinook salmon:

- Over a restricted set of flows (about 2,500 – 6,500 cfs measured at Vernalis) using seven years of data (1994, 1997, 2000-2004) when the Head of Old River Barrier (HORB) was in place, SJRTC (2008) estimated survivals between Mossdale or Durham Ferry and Jersey Point on the mainstem San Joaquin River. A strong positive relation between estimated survival rates and Vernalis flow was evident. A considerably weaker positive relation between estimated survival rates from Dos Reis (immediately below Old River) and Jersey Point, over a much broader range of flows, and for years with the HORB in place or not, is evident in Figure 16 of SJRTC (2008).
- In a broader and more sophisticated hierarchical Bayesian analysis of all relevant sets (many VAMP-generated) of San Joaquin CWT releases from 1989 through 2006, Newman (2008) found a positive influence of San Joaquin River flow below Old River on survival rates. Newman’s analyses cover the full range of flows that were encountered over this time period. However, migratory pathways when the HORB was not in place were unknown.
- In addition, the panel's own summaries of CWT-based estimates of survival rates from Mossdale (when the HORB has been in place) or Dos Reis to Jersey Point (see the following section) are consistent with a general increase of mean survival rates with increasing flows measured at Dos Reis.

Although the two statistical analyses and the panel's own summaries of CWT-based survival rates provide support for a contention that greater Vernalis flows have been associated, on average, with higher survival rates for juvenile Chinook salmon migrating through the San Joaquin River, the review panel's "yes" response to this question is qualified in four very important respects:

- Conditions for successful migration through the San Joaquin River and the Delta probably depend on a very complicated set of interacting hydraulic features (including export pumping, flows in Sacramento River tributaries and in the main Sacramento Channel, tidal influences, others), of which Vernalis flow is only a single feature, and also on biological factors (such as predation) which may vary interannually, independent of Vernalis flow.

- Apparent downstream migration survival of juvenile Chinook salmon was very poor during 2005 and 2006 even though Vernalis flows were unusually high (10,390 cfs and 26,020 cfs, respectively). These recent data serve as an important indicator that high Vernalis flow, *by itself*, cannot guarantee strong downstream migrant survival. We recognize that estimated survival estimates for 2005 and 2006 releases have greater uncertainty due to closure of nearly all ocean salmon fisheries south of Cape Falcon in 2008 and 2009.
- There is no statistically significant relation between estimated CWT survival rates and Vernalis flow for Mossdale/Durham Ferry releases made when the HORB has not been in place (SJRTC (2008)). However, statistical identification of a flow-dependence for these survival rates is strongly affected by the recent low survival rate calculated during the highest VAMP flow year of 2006. As noted above, however, the uncertainty of this estimate is higher than prior years as ocean fisheries were essentially closed in 2008 and 2009, eliminating ocean coded wire tag recoveries at age 3 and 4 for 2006 releases. The result may also reflect variable but unknown rates of diversion into the Old River system as compared to the mainstem San Joaquin River.
- We are concerned that there has been an apparent substantial decline in downstream migrant survival rates over the past ten years, at very low flows, low VAMP flows, medium VAMP flows, and at high (exceeding VAMP) flows (see Figure 13 in SJRTC 2008 and following section). Although the statistical basis for this decline is not yet compelling, all review panel members were struck by the coincident decline across independent CWT release groups at four different flow groupings. It seems likely that this apparent decline in survival rates is real. If this apparent time-dependent decline is real, and presumably due to recent changes in the Delta ecosystem or other factors, then Figure 14 from SJRTC (2008) would predict higher survival rates than would be achieved given flows *under current circumstances*.

Exports

We believe the information obtained from VAMP studies regarding export effects on juvenile salmon survival has been useful, but inconclusive. Both standard regression analyses (summarized in SRJTC, 2008) and Bayesian hierarchical modeling (BHM) analyses (Newman, 2008) were unable to detect any statistical associations between exports and smolt survival through the Delta using the VAMP CWT study data. For a number of reasons, however, we do not believe these findings should be interpreted as meaning that exports, especially at high levels, have no effect on survival rates. CWT study data were not collected over an adequate range of export levels to achieve enough statistical power to identify an export effect. More recent acoustic-tagging studies done under the VAMP have not yet generated enough data to conclude much about export effects and these studies have also been carried out under tightly restricted levels of exports. Below we provide a summary of our thoughts concerning the effects of export flows.

- One of the arguments for asserting that export flows affect salmon survival in the Delta is the relationship found between adult salmon escapement for the San Joaquin River and the ratio of Vernalis flow/export flow between April 15 and June 15 from 2 ½ years earlier (SJRG, 2007). The escapement relationship

using the flow/export ratio as independent variable was found to better predict the data for 1951-2003 than a relationship using flow alone (SJRG, 2007). The mechanism hypothesized for the relationship is the effects of both flow and exports on survival in the smolt life stage. As noted by the SJRTC (2008, p. 27), however, there is uncertainty and noise in this relationship “because escapement does not separate fish of different ages contained within annual escapement estimates, reflect the impact of declining ocean harvest in recent years or the uncertainty associated with escapement estimates themselves.” Thus, this relationship alone is not an adequate basis for assuming an export effect. Indeed, part of the reason for VAMP was to further investigate the role of exports on smolt survival through the Delta as hypothesized from the escapement relationship.

- The VAMP experimental design limits exports to between 1,500 and 3,000 cfs depending on the target for San Joaquin River flow. This range was required to achieve the two objectives of protecting naturally spawned juvenile salmon and meeting the terms of the delta smelt biological opinion in effect at the time the VAMP was formulated. The five years (2000-2004) of actual VAMP CWT studies done with a HORB in place investigated a range of exports only between 1,450 and 2,250 cfs. We believe this is much too narrow a range in exports to allow detection of a statistically significant export-survival relationship for the San Joaquin River. Additional CWT studies conducted without a HORB in place, and including all pre-VAMP years since 1994, investigated only a slightly larger range of exports (between about 1,400 and 3,700 cfs) with the one exception being 2006 when an experiment in mid-May of that year was done with exports at 6,000 cfs. Because the 2006 experiment with high exports was done during very high flow conditions (Vernalis flow = ~25,000 cfs) and with the Paradise Cut flood bypass in use, it is not helpful for comparing with earlier years at much lower flows.
- Several of the earliest pre-VAMP studies conducted in the years 1985-1991 investigated spring export levels much higher than 3,000 cfs, although without a HORB in place. Most of these studies compared paired smolt releases on the mainstem San Joaquin River at Dos Reis and on upper Old River. Studies in 1989 and 1990 targeted both high (~10,000 cfs) and low (~2,000 cfs) export levels. Exports for studies between 1985 and 1987 and in 1991, ranged between 4,000 and 7,000 cfs (SJRTC, 2008, p. 34). The inclusion of results from these early, high-export experiments in the BHM analyses by Newman (2008) did not produce evidence of any statistical associations between export levels and survival probabilities that were more than weak or negligible. In fact, one of the models developed by Newman (2008) indicated the surprising result that survival improved with increasing exports in both the mainstem San Joaquin River and Old River. Unfortunately, comparing data from these early experiments with more recent data might not be useful if other conditions, such as predatory/prey balance and resulting predation rates on juvenile salmon, have changed over time in the Delta. There are reasons to suspect conditions have changed. For example, survival estimates calculated from the experiments with high (~10,000 cfs) exports and very low (near zero) San Joaquin River flows at Dos Reis in 1989 and 1990 (for releases at Dos Reis) were found to be much higher than survival estimates from experiments with low (~1,500 cfs) exports and higher

(~3,000 cfs) San Joaquin River flows at Dos Reis in the years 2003 and 2004 (for releases at Mossdale with a HORB in place).

- Data from the early (1985-1991) pre-VAMP studies with high exports indicated that, on average, survival estimates for smolts released on upper Old River appear to be about half those for smolts released on the mainstem San Joaquin River just below the Head of Old River at Dos Reis (Brandes and McLain, 2001). Newman (2008) confirmed statistically that the survival probability for fish traveling through Old River is generally lower than the survival probability for fish traveling down the mainstem San Joaquin River. We believe that any "Export" effect must be masked by this "Old River" effect, and that the lower survival observed for the Old River route is at least partially attributable to export effects, both direct and indirect. One reason we believe this is that while predation might naturally be higher along Old River, the export facilities themselves seem to attract additional predators to the south Delta. A second reason is that the data show that the numbers of CWT study smolts detected in the salvage at the fish facilities are always higher for releases on upper Old River versus Dos Reis. Thus there are clear differences in direct entrainment losses between the two routes. Finally, if a fish traveling the Old River route does successfully navigate past the fish facilities during periods of high exports, it is then subjected to the reverse net flows, caused by exports, in the reaches of Old and Middle Rivers north of the facilities. It is difficult to imagine that migrating salmon smolts, cueing mostly on flow direction, will not have greater difficulty navigating to the north through these reaches to San Francisco Bay in a direction that might appear as "upstream" to their senses. Losses of smolts due to altered hydrodynamic conditions or migration cues in the Delta related to exports are referred to as "indirect" losses or mortality. Indirect mortality due to exports is discussed in more detail later in this report.
- The panel believes that additional acoustic-tagging experiments hold promise for better quantifying direct export losses and survival through collection, handling, transport, and release (CHTR) of tagged fish moving into the fish facilities, and for quantifying reach-specific indirect mortality as affected by exports, assuming that an adequate range of exports can be investigated.

Barrier installation at the Head of Old River?

We believe that both empirical evidence and logical inference support a conclusion that installation of a barrier at the Head of Old River improves survival of downstream migrating juvenile Chinook salmon. These lines of evidence include the following:

- Newman's (2008) thorough analyses of CWT releases showed that survival from the Durham Ferry or Mossdale to Jersey Point reach has consistently exceeded apparent survival of fish that were released in or that presumably entered Old River and, presumably, were salvaged, trucked and released back into the San Joaquin or Sacramento rivers;

- Early paired CWT releases made in Old River and at Dos Reis, in addition to Jersey Point, support this same conclusion: recovery rates at Chipps Island were greater for fish released in the mainstem San Joaquin;
- Recent acoustic tagging experiments at low flows have generated additional persuasive evidence that survival rates for fish migrating through Old River are less than those for fish released at Dos Reis, and have also suggested that essentially no fish successfully navigate through the Delta on their own once they entered the Old River Channel. Survivors via the Old River route appear to have consisted exclusively of fish that were salvaged, trucked and released. We recognize, however, that reduced tag life due to premature tag failure in 2007 and 2008 may have prevented detection of some fish that successfully navigated the Old River channel;
- The hydraulic flow patterns that emerge in the Delta when export pumping is proceeding, especially when San Joaquin flows are relatively low, means that fish entering Old River would be naturally drawn to the pumps (they would to that point be following the natural downstream flow of Old River). Thereafter, if they successfully avoided the pumps or entered other Delta channels, they would typically be faced by reverse net flows. We find it biologically untenable to imagine that downstream-migrating salmon can easily navigate to the mainstem Sacramento River by migrating in a direction that would appear, based on the net flow direction, as "upstream" to them. That kind of behavior would be an unsuccessful one in any natural system.

2) How can the results from the VAMP to date be used to inform the SWRCB's current efforts to review and potentially revise the San Joaquin River flow objectives and their implementation?

In setting flow objectives, there are many issues the Board must consider in balancing water needs for all beneficial uses in California. Many of these issues are well beyond the scope of our science panel to consider. We therefore limit our discussions here to San Joaquin salmon science issues only.

- In our answer to question 1, we attempted to summarize the scientific information obtained from the VAMP studies related to salmon survival through the Delta and the three factors of flow, exports, and the HORB. For several reasons, it is not straightforward to use that information to inform the Board's current efforts to review and revise San Joaquin River flow objectives. Because our review focused on the survival and passage of salmon smolts through the Delta, we did not evaluate other factors that may be limiting future salmon production. In setting flow objectives, we believe the Board should consider the role of Delta survival for the smolt life stage in the larger context of the entire life cycle of the fall-run Chinook, including survival in the upper watershed, the Bay and the ocean and fry rearing in the Delta (SJRTC 2008). Although some positive statistical associations between San Joaquin River flow and salmon survival have been identified, there is also very large variation in the estimated survival rates at specific flow levels and there is a disturbing temporal trend to reduced survival rates at all flows. This large variability and associated temporal decline in survival rates strongly supports a conclusion that survival is a function of a complex set of factors, of which San Joaquin River flow at Vernalis is just one. It

does not seem possible to choose a precise flow target that will reliably achieve a certain survival result.

- Given these caveats, we do believe the Board needs to consider that survival of San Joaquin River smolts through the Delta is low and appears to have gotten lower (for unknown reasons) in the past 10 years. San Joaquin River mainstem survival estimates from Mossdale or Dos Reis to Jersey Point were just slightly greater than 1 percent in 2003 and 2004 and the estimate was only about 12 percent in the very high flow year of 2006. This compares to survival estimates that ranged between about 30 and 80 percent in the years 1995 and 1997-2000. The recent survival estimates are significantly lower than the long-term average survival estimate of about 20 percent, which itself is considered low when compared to the Sacramento River and other estuaries like the Columbia River. The very low recent survival rates seem unlikely to be high enough to support a viable salmon population, even with favorable conditions for ocean survival and upstream migration and spawning success for adults.
- Regarding the HORB, we believe that installing the physical barrier is valuable for improving survival through the Delta because it keeps fish in the mainstem San Joaquin River channel and increases the flow past the City of Stockton. We understand, however, that there are issues related to delta smelt that may prevent the installing of the physical barrier in the future. We briefly comment on the issue of delta smelt and the HORB later in our report.
- Regarding export objectives, our feeling is that it makes sense during VAMP to continue limiting exports to some fraction of San Joaquin River flow at Vernalis so that the entire flow of the San Joaquin River is not diverted and so that reverse flows, if they occur, are not large. We cannot, however, offer any guidance as to what the Vernalis flow/export ratio should be. With through-Delta survival estimates presently so low and no physical HORB in place, it seems worthwhile to continue investigations to understand and improve the efficiency of the fish facilities and the overall CHTR process so as to boost the survival for smolts that are entrained at the facilities and are then trucked and released. However, we do not believe that migration through Old River and subsequent salvage trucking and release is a desirable route for downstream migrating smolts. To the maximum extent possible, migration through the mainstem San Joaquin channel should be encouraged.
- In establishing flow objectives for any future VAMP experimental design for adaptive management investigations, it makes sense to deliberately include more frequent flows at the higher target levels (5,000-7,000 cfs with HORB in place, or 6,000 - 10,000 cfs with no HORB in place) whenever possible. VAMP flows generally have been too restricted in range and have included more low flows than high flow. From an experimental or adaptive management perspective, it is impossible to learn much about effects of higher flows without having a chance to observe survival (and carry out acoustic tagging experiments) at such higher flows.

3) How can the experiences to date from the VAMP study be used in a scientific manner to inform future monitoring and study efforts related to determining appropriate flow, operational, and water quality requirements to protect San Joaquin River fisheries (specifically Chinook salmon and steelhead)?

The review panel was not provided with any review materials or presentations specifically pertinent to water quality requirements for San Joaquin River fisheries (with the minor exception of occasional reference to temperature data), so we do not feel qualified to comment on that topic. Also, our panel was provided with no review materials that focused on survival of outmigrating juvenile San Joaquin River steelhead. Our response to this question as it concerns steelhead fisheries is therefore very limited in scope.

We believe that the experiences to date from the VAMP suggest that some modifications to program activities should be made. In many cases, these modifications have already been made as part of the adaptive VAMP process.

- A shift in emphasis from CWT releases to use of acoustic tagging technologies appears well justified. Past CWT tagging was informative, but capture efficiencies in trawl surveys were extremely low and this procedure only allows single point capture. Acoustic tagging is a promising new technique that should allow accurate estimation of survival rates along known migration routes, and allows application of well-developed statistical procedures (Cormack-Jolly-Seber type) for working with re-sighting data. More years of acoustic tagging data will be needed to develop relations between estimated survival rates, San Joaquin flows and exports, and improvements in tag longevity seem needed to confidently establish use of certain migratory paths, but the approach seems clearly excellent. Nevertheless, we believe that it is important to continue some CWT releases so as to establish interannual variation in ocean survival rates based on ocean recoveries and freshwater adult escapement of San Joaquin origin Chinook salmon.
- It would be desirable for VAMP to explore a greater range in mainstem flows than seem currently possible or projected. Especially informative would be flows in the range of 5,000-7,000 cfs (assuming HORB in place) or 6,000 - 10,000 cfs (with no HORB in place) at Vernalis. The importance of exploring survival under such higher flows is in part based on the fact that contemporary San Joaquin flow patterns bear little resemblance to the unimpaired flow regimes to which Chinook salmon must have adapted in the San Joaquin system.
- Although lack of an ability to detect an "Export effect" on survival rates can be in large part attributed to lack of variation in recent export flows, we are reluctant to recommend substantial increases in export flows so as to improve the ability to detect an export effect. Among other things, the potential negative consequences of increased exports during downstream migration of juvenile Chinook salmon (and also on survival of juvenile delta smelt) probably outweigh any possible increase in knowledge.
- Recent acoustic tagging has presented dramatic evidence that predation can be a very substantial cause of downstream migrant mortality. However, these very high predation rates have coincided with extremely low flow conditions and also with years during which an experimental "Bubble Curtain" rather than a physical barrier has been used to divert

fish away from the Old River channel. Both low flows (2008 and 2009) and the Bubble Curtain (2009 only) may have contributed to high predation in 2008 and 2009. Although it is too soon to conclude that observed predation rates in these two years are "typical" rates of predation, it seems clear that identification and management of predation must be a future focus of studies and management activities. It is conceivable that predation impacts on juvenile Chinook has increased due to the recent decline in other pelagic organisms that previously served as alternative prey for predators.

- Life history differences between Chinook salmon and steelhead are striking, and we therefore do not believe that performance of acoustic tagged juvenile Chinook salmon provides a reliable basis for inference concerning the potential relations between San Joaquin flow and downstream migration survival of steelhead. Instead, we believe that acoustic tagging of steelhead will be required. As a source for these tagged steelhead, we recommend use of steelhead from whatever Central Valley hatchery would be characterized as rearing fish that are genetically most closely related to steelhead from San Joaquin tributaries. We surmise that Mokelumne River hatchery might be a reasonable source for acoustic tagging of steelhead.
- Although a physical HORB appears to improve survival rates of downstream migrating Chinook salmon smolts, the bubble curtain installed in 2009 had limited effectiveness due to predation and probably also because it did not change local hydraulics - a factor known to direct smolt movement. While predation will continue to be an issue at any type of structure, hydraulics should be incorporated into any barrier design, especially if a bubble curtain is again used instead of a physical barrier.
- Operational issues of smolt entrainment, predation, transportation and release effectiveness should continue to be worked on at the SWP/CVP facilities (objective being to increase smolt survival) with the assumption that a proportion of smolts will continue to encounter these export facilities at some point in their downstream migration period if a physical barrier is not installed at the Head of Old River.

PART III. Support for Answers to Questions Provided in Executive Summary.

In this section, we provide justification for many of the statements that we made in our Executive Summary. We begin this section with an overview of our understanding of the hydraulic dynamics of the Delta as it relates to conditions faced by downstream migrating Chinook salmon. We believe that this overview is essential to justifying several of our answers.

A. Overview of Delta Hydraulics

A1 — San Joaquin River flows during VAMP versus "unimpaired flows"

Because higher experimental flows would be desirable for VAMP studies of salmon smolt survival, it is natural to ask how springtime “unimpaired flows” compare to the target flows for the San Joaquin River at Vernalis that were achieved during VAMP. Unimpaired flow is an approximate substitute for natural flow that represents the runoff from a basin that would occur without upstream controls, regulation or diversions, but with the channel network in the existing configuration. The California Department of Water Resources (DWR) has estimated the monthly unimpaired flows for sub-basins in the Central Valley of California and for the Delta for the period 1921-2003 (California DWR, 2007). The panel used the DWR unimpaired flow data to prepare Figure 1, which shows the average unimpaired flows for the San Joaquin Valley between April 15 and May 15 and the VAMP target flows for the years of 2000-2003. Because snowmelt from the upper elevations of the San Joaquin River watershed typically is high in April/May, the unimpaired flows normally are highest during those months and the alterations to flows caused by upstream water development are the greatest (Fleenor and others, 2010). On average the San Joaquin River target flows at Vernalis during April-May of the first four VAMP years were 22 percent of the unimpaired flows.

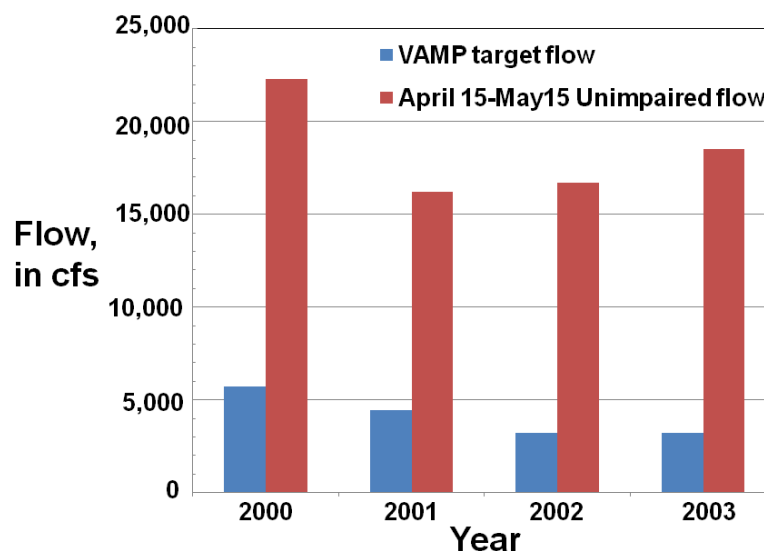


Figure 1 -- VAMP target flows and average April-May unimpaired flows for the San Joaquin River during 2000-03.

A2 — Migration of San Joaquin River smolts through the tidal Delta

When Chinook salmon smolts enter the Delta on the San Joaquin River they encounter a much different physical habitat than the upper river. The channels increase in width and depth, but the most significant change is that the flow oscillates, twice daily, due to tidal effects. The range in magnitude of these oscillations along the mainstem San Joaquin River increases significantly in the down-estuary direction and becomes very large in the lower reaches of the river near Jersey Point (Figure 2). During periods of relatively low San Joaquin River inflows ($< \sim 3,000$ cfs), migrants first encounter tidally oscillating flows in the reach between Vernalis and Mossdale and encounter fully bi-directional (flood and ebb) flows beginning near the Head of Old River. Near Jersey Point, flood and ebb tidal currents can exceed 1 m/s and daily tidal excursions of water parcels can exceed 10 kilometers. At high flows ($> \sim 20,000$ cfs) on the San Joaquin River, flows can remain unidirectional until beyond Stockton, but a migrating fish will in almost all circumstances encounter bi-directional flows beyond that point.

Superimposed upon the oscillating tidal flows in the Delta, migrating fish also are subjected to more slowly varying “net” or “tidally averaged” flows. As an example, graphs showing time series of both the tidal and tidally averaged flows on the San Joaquin River just upstream from the City of Stockton during calendar year 2004 are shown in Figure 3. The tidally averaged (net) flows depend mostly on the river inflows at Vernalis, but fluctuations also occur due to tidal-flow interactions with the bathymetry, meteorological effects, and other factors. The net flows further down-estuary on the San Joaquin River are increased by flows leaving the Sacramento River near Walnut Grove that travel south through Georgiana Slough and through the Delta Cross Channel (if the gates are open) and then join with flows originating from the Mokelumne and Cosumnes Rivers before entering the San Joaquin River. Near Jersey Point the net flows typically become a small fraction of the maximum ebb and flood tidal flows.

Migrating smolts that enter the Delta estuary at Vernalis must find their way to the San Francisco Bay (and ultimately the ocean) through the large oscillating tidal flows, while avoiding a host of predators and finding new sources of food. Not a great deal is known about the fine-scale migratory behavior of salmon smolts in estuaries and about how those movements are affected by large tidal flows. In contrast to the home-stream migration of adult salmon through estuaries, it is felt that the olfactory sense is not essential for outmigrating smolts navigating to the sea. And while salinity would seem like an obvious cue for migration, there is little evidence of that (Williams, 2006). The fish are thought to cue on downstream flow direction, although they may use the position of the sun or cues from the Earth’s magnetic field to navigate if flow cues cannot be detected, for example in turbid water (Williams, 2006). In the Delta, because of the large differences between tidal and net current speeds and the frequent occurrence of reverse flows, it seems likely that successful navigation must depend to some degree on factors other than the direction of the net current alone. Despite the dramatic differences between river and estuarine systems, coho salmon smolts have been documented to behave similarly in both systems (Moser et al. 1991). Observed migratory progress was saltatory, characterized by movement in the direction of the current and extended periods of holding in areas of low current velocity. Consequently, coho salmon smolts were displaced rapidly downstream by swift, unidirectional river currents but were retained in the estuary by relatively low-velocity, reversing tidal currents (Moser et al.

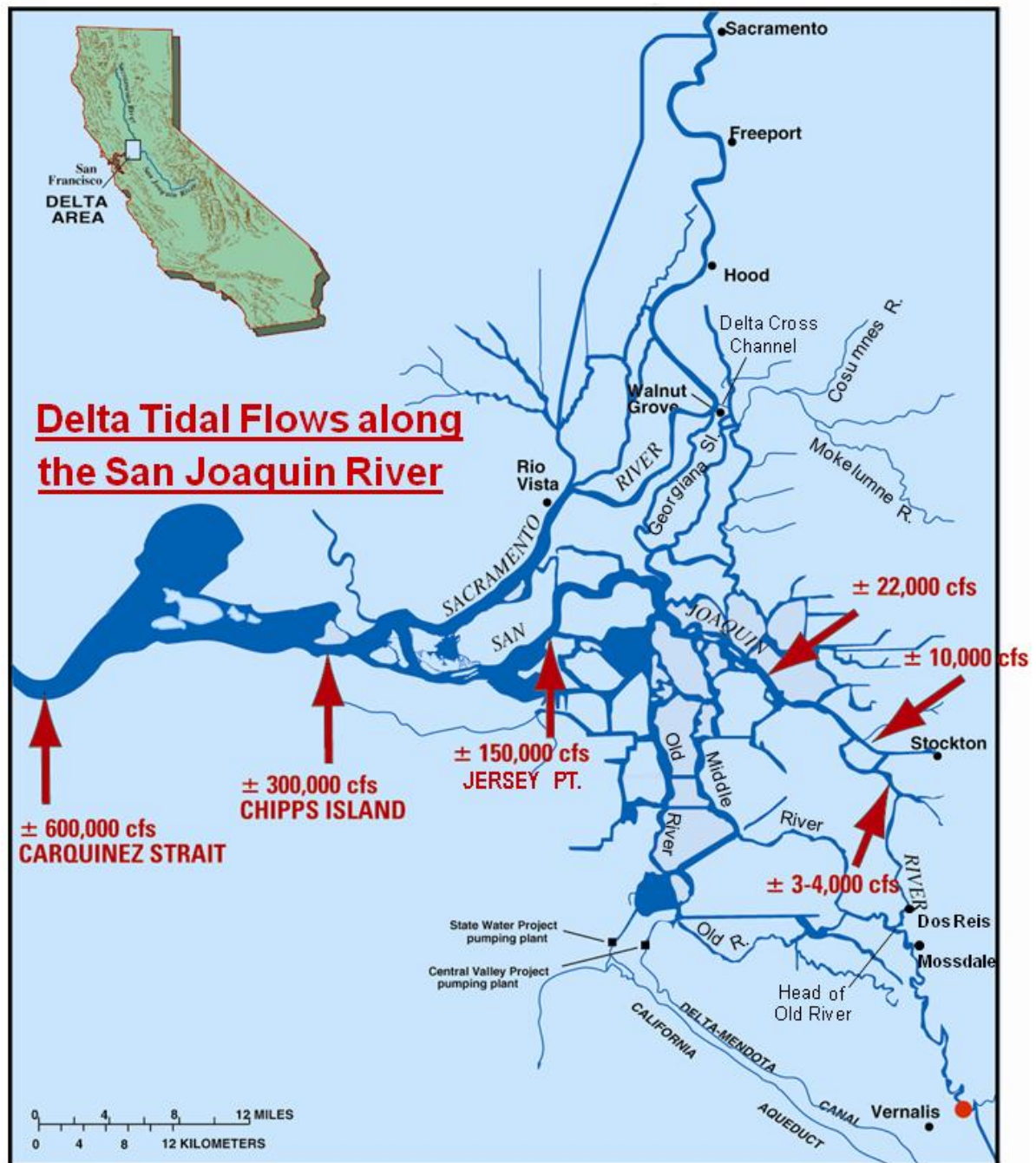


Figure 2 -- Typical ranges of measured tidal flows at various locations along the San Joaquin River during conditions of low inflow at Vernalis.

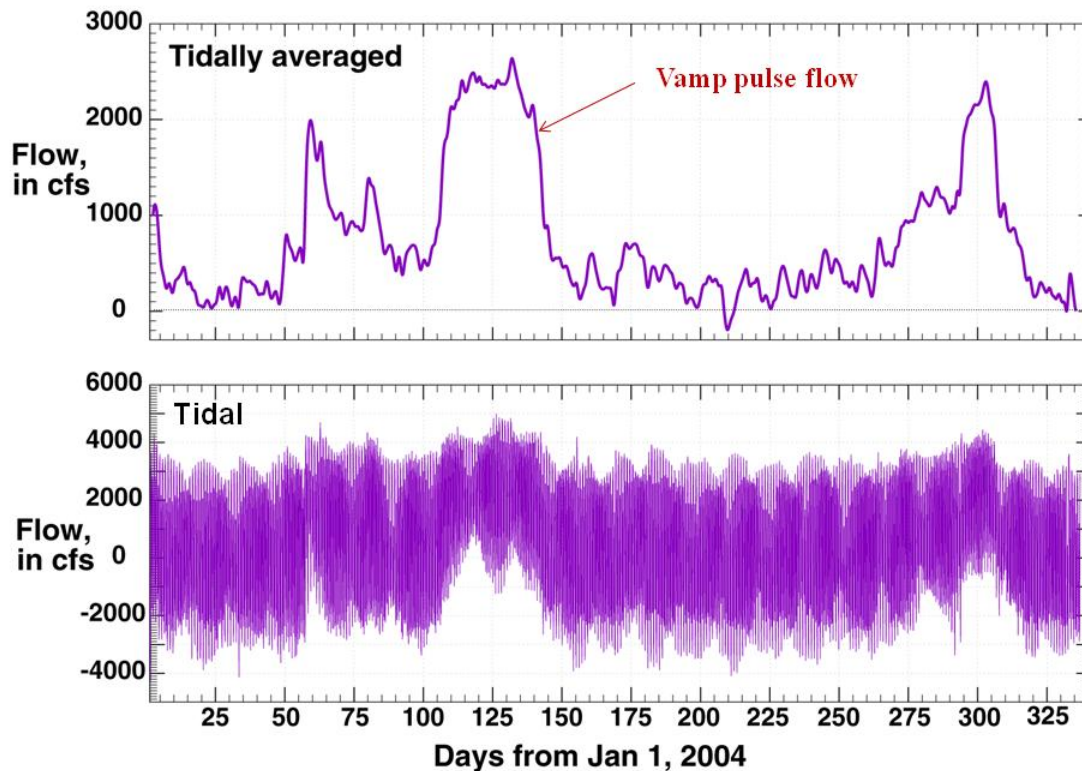


Figure 3 -- Measured tidal and tidally averaged flows on the San Joaquin River above Stockton during 2004.

1991). It is unknown, but conceivable, that tidal current phasing could influence Chinook salmon smolt progress down-estuary if, for example, a diel pattern of smolt holding and movement corresponds with maximum ebb flows during times of smolt movement and maximum flood flows during times of holding or vice-versa. Diel patterns of holding and movement by acoustic-tagged hatchery smolts have been reported in preliminary findings from north Delta juvenile salmon outmigration studies (Bureau et al. 2007). Moser et al. (1991) did not find coho salmon smolts modifying behavior to make use of tidal currents to move seaward, so any speedup or slow-down on Chinook salmon smolt transit times due to tidal effects could occur simply by happenstance relating to the synchrony of the tidal cycle with normal migration behavior. Clearly more research is needed to better understand any role tidal flows might play in affecting downstream migration.

The VAMP study results support the widely held notion that increased inflows to estuaries and increased down-estuary net current velocities decrease juvenile salmon travel times through the system and increase survival. It is crucial, however, to understand what quantities of flow releases are needed to increase smolt survival.

A3 — The Stockton DWSC

We suspect that one variable that may have particular relevance to survival of salmon smolts down the mainstem San Joaquin River is the net flow through the Stockton Deep Water Ship Channel (DWSC). During VAMP acoustic tagging studies in 2008 and 2009, receivers were placed at both ends of this reach, so particular attention is already being paid to this reach by VAMP investigators, which seems justified. As illustrated in Figure 4, the cross-sectional area of the San Joaquin River increases significantly (5 or 6 times) in the reach downstream of Channel Point. This increase in area causes a large increase in the water transit time through the reach of river between Channel Point and Turner Cut.

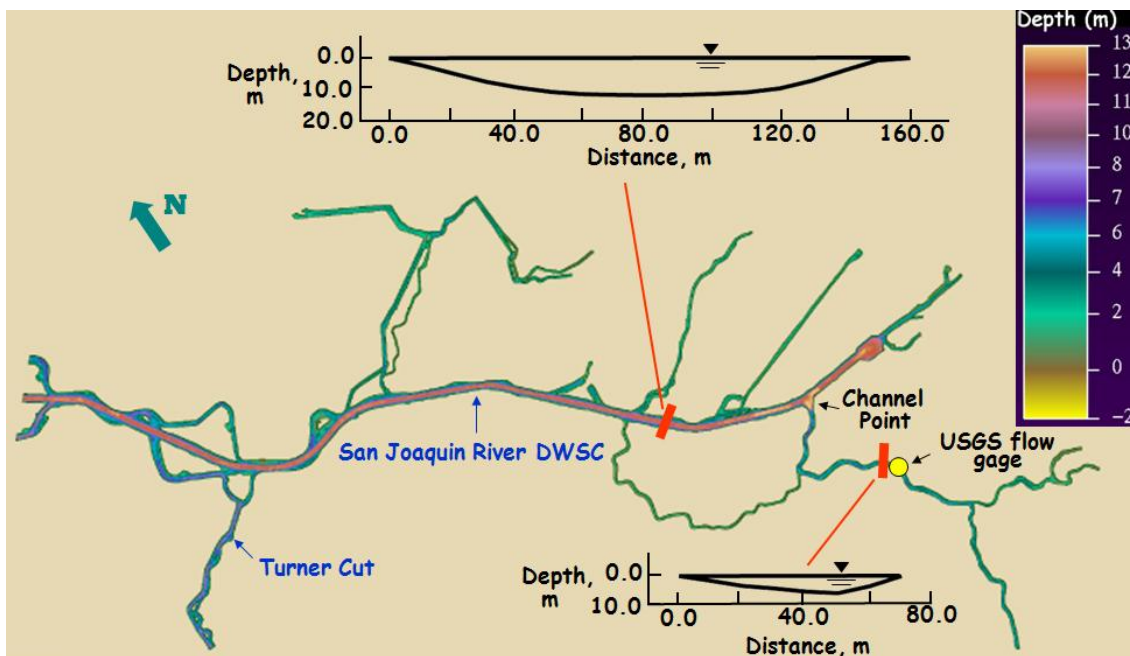


Figure 4 -- Comparison of San Joaquin River cross-sections from the Deep Water Ship Channel and the reach upstream of Channel Point.

Figure 5 shows two relationships developed using particle-tracking models to calculate the transit time through the DWSC for various net (tidally averaged) flows. The transit times are computed between Channel Point and a location just downstream of Turner Cut (but upstream of Columbia Cut). The curves were computed using slightly different assumptions and with two different sets of hydrodynamic and particle-tracking models, one three-dimensional and the other one-dimensional, so there are differences between the two curves. Both curves, however, indicate a rapid increase in mean particle transit time that occurs through the reach when flows fall below approximately 2,000 cfs, and especially below 1,000 cfs. The extensions of the curves have not been calculated for flows lower than 800 cfs. During low flows, when salmon smolts experience long water transit times combined with the large, back-and-forth movement of the tidal flows that occur in this reach, it is likely that their downstream movement might stall, increasing the likelihood of their becoming prey to larger fishes.

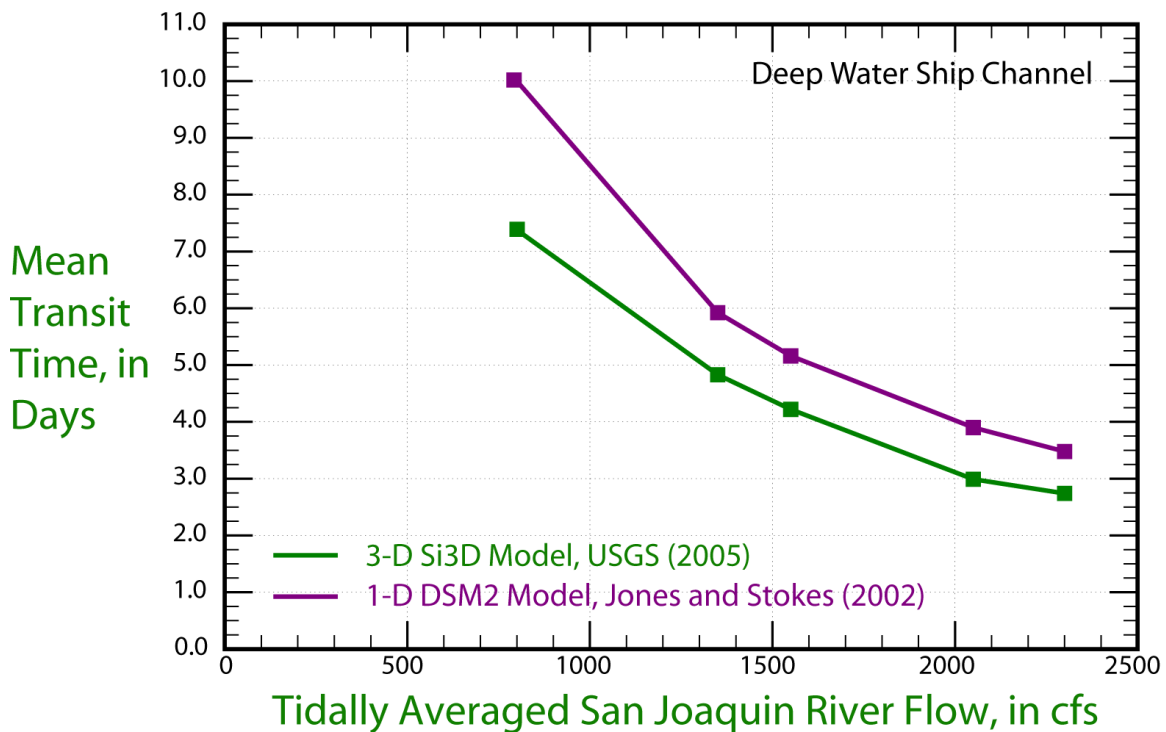


Figure 5 -- Curves of mean water transit time through the Stockton Deep Water Ship Channel as a function of flow calculated from two different particle-tracking models.

Figure 6 is a graph of the net flows at the USGS Garwood Bridge gaging station near Stockton measured during the period April 1-May 31 for 2008 and 2009. The magnitudes of flows during the 2009 VAMP fish releases were very low compared to all other years of VAMP and pre-VAMP studies since 1991; flows ranged between approximately 250 and 600 cfs. During 2008 the flows were higher, ranging between approximately 1,000 and 1,400 cfs. The smolt survival measured through this reach in the acoustic-tagging experiments of 2009 was only 12 percent, which was reported as “surprisingly low” by the investigator (Vogel, 2010). In 2008 the average survival estimate (fish-tag survival probability) was 49 percent and 56 percent for weeks 1 and 2, respectively (Holbrook et al. 2009). Although there were several important differences between the tagged fish (different hatchery origin and size) and data-processing procedures (auto-tracking versus manual) used in the 2008 and 2009 experiments, the large difference in survivals between the two years could, at least in part, be due to the lower flows in 2009. In both years, survival through the upstream reach of the San Joaquin River (between Old River and Stockton) was much higher (69% to 85% survival) than through the DWSC, despite being approximately equal length migration distances. Understanding the relationship between flow and survival through the DWSC of the San Joaquin River warrants further investigation to clarify whether it might serve as a “bottleneck” for survival, especially at flows under approximately 1,000 cfs.

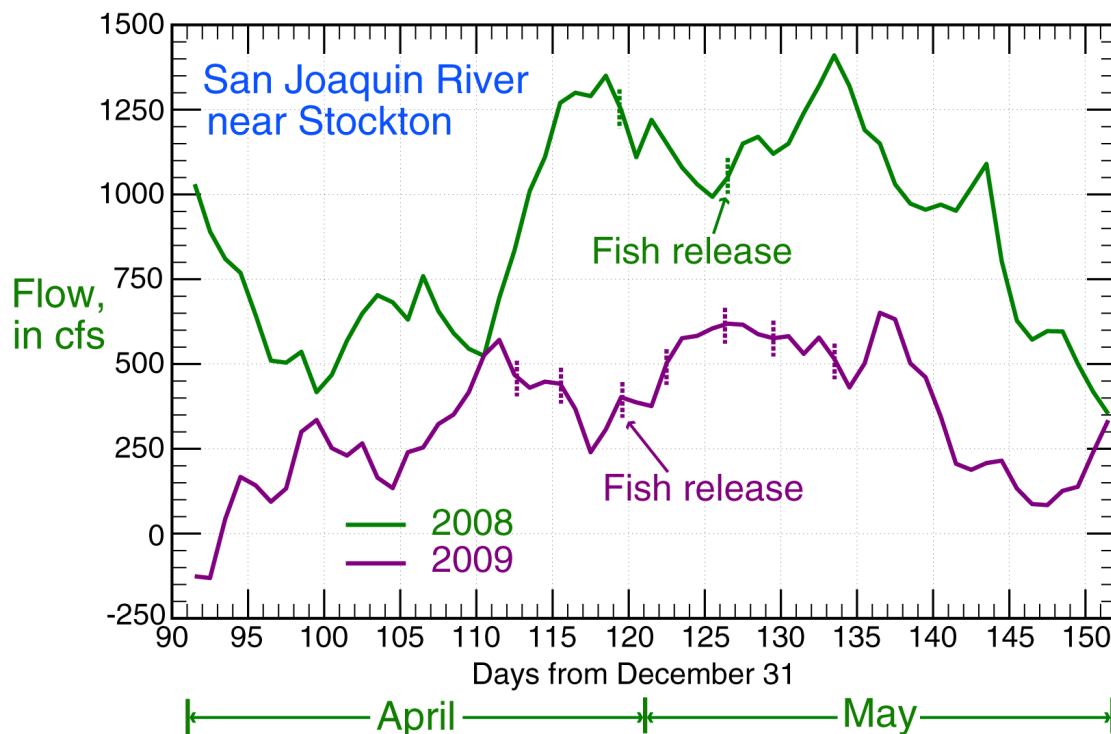


Figure 6 -- Measured net flows for the San Joaquin River upstream of Stockton for April and May of 2008 and 2009.

A4 — “Indirect” effects of south Delta exports on smolt mortality

In our answer to question 1b (Effects of Exports), we defined “indirect” export losses or mortality as losses of smolts due to altered hydrodynamic conditions or migration cues in the Delta that are caused by exports. The south Delta exports, especially when they are larger than San Joaquin River flows at Vernalis, can have a rather profound effect on the net flows in south and central Delta channels as illustrated in Figure 7, reproduced from Arthur et al. (1996). The flows in Old and Middle Rivers are affected most by exports and it is common for the flows in those channels to be in the reverse direction (i.e., “negative” flows) from their natural flow, which is positive to the north. It seems biologically reasonable to suspect that migrating salmon smolts, cueing on flow direction, would have great difficulty navigating to the north through these reaches to San Francisco Bay, in a direction that might appear as “upstream” to their senses. Because net flows are reversed, hydrodynamic transport of smolts to the north by the action of the net currents themselves cannot happen. Fish that remain in this portion of the Delta for a period of days and somehow avoid being entrained at the export facilities are most likely lost to predation, which is thought to be high near the entrances to both the state and federal facilities. These losses would be considered as indirect mortalities resulting from exports. Although during VAMP reverse flows are typically small because of low exports and San Joaquin River pulse flows, reversed flows have still occurred in all but the high-flow VAMP years. It is because of these reverse flows, and the possibility of indirect losses they can cause, that it seems wise to

keep smolts out of Old River, whether by a physical or non-physical barrier at the Head of Old River (HOR).

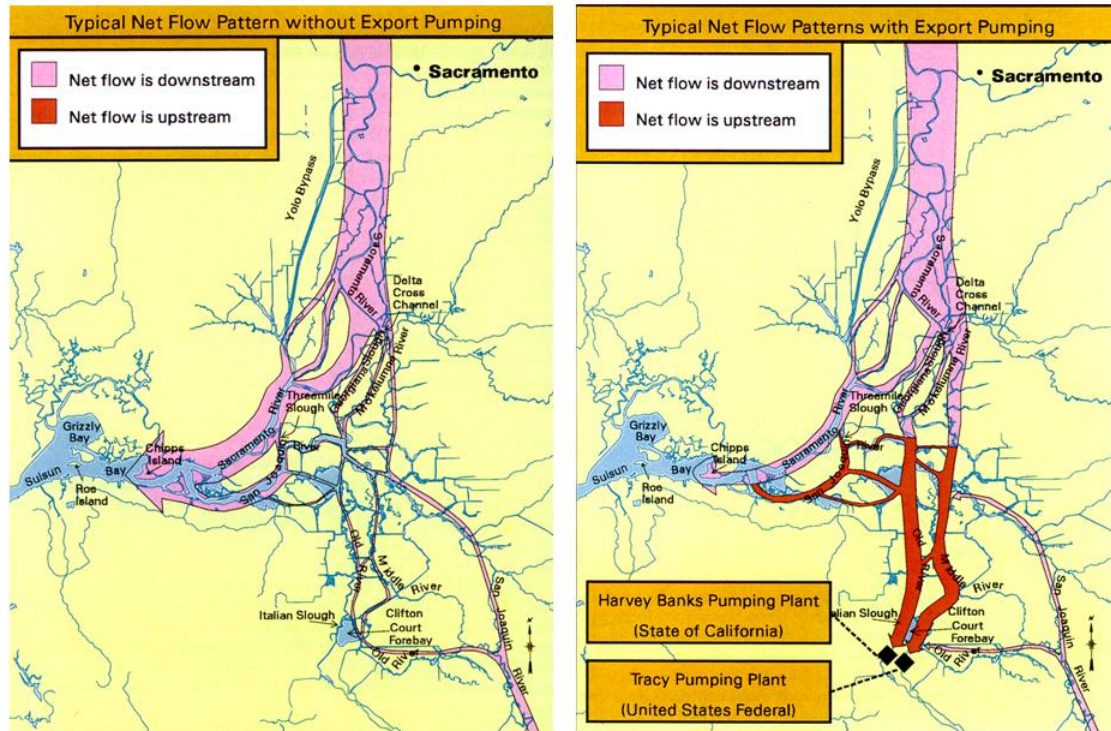


Figure 7 -- Effects of high exports on net flow patterns in the Delta (modified from Arthur et al, 1996).

Indirect mortality due to exports can conceivably occur with smolts traveling down the mainstem San Joaquin River as well as Old River if exports are sufficiently high to cause reverse or significantly reduced flows on the San Joaquin River mainstem as illustrated in Figure 7. When the magnitude of export flow exceeded Vernalis flow (which occurred only during many of the early, pre-VAMP studies, prior to 1993), it was common for reverse flows to occur on the reach of the San Joaquin River down-estuary from Turner Cut. Without a HORB in place, high exports can also incrementally reduce flows on the mainstem San Joaquin River leading to Stockton by drawing more water through the HOR than would otherwise occur.

B. Coded Wire Tag Recoveries

Sets (typically pairs) of releases of Chinook salmon smolts given adipose fin clips and distinct coded wire tag numbers have been used to assess survival rates of juvenile Chinook salmon through various reaches of the San Joaquin River system, in particular for the reach from Mossdale/ Durham Ferry or Dos Reis to Jersey Point, just upstream of the confluence of the San Joaquin and Sacramento rivers. The experimental strategy

has been to release a group of CWT fish at Mossdale/Durham Ferry or Dos Reis on the mainstem San Joaquin and to release a group at Jersey Point at approximately the same time. Trawl surveys at Antioch and Chipps Island, below Jersey Point, generated recoveries of fish from these releases. For meaningful analysis of these release and recovery data, two key assumptions must be met: (a) there is no substantial initial "release mortality", and (b) the recovery rates of fish from all CWT groups in a particular set are identical in the Antioch or Chipps Island trawls. The first assumption might be violated if, for example, temperatures in the mainstem San Joaquin were sufficiently high to induce thermal shock which resulted in substantial immediate mortality following release at that location. The second assumption might be violated if fish from paired groups were not vulnerable to the Antioch and Chipps Island trawls over the same period of time and trawl capture efficiency had substantial temporal variation (as a result of flows, tidal cycles, or other factors).

If the two assumptions above are met, then the ratio of recovery rates (Antioch plus Chipps Islands recoveries divided by release group size) from a CWT group released at Durham Ferry/Mossdale or Dos Reis as compared to a group released at Jersey Point should provide an estimate of survival between Durham Ferry/Mossdale or Dos Reis and Jersey Point. Although this approach has substantial conceptual merit when the assumptions are met, it also has three important limitations. First, the recovery rates in the Antioch and Chipps Island trawls have historically been exceptionally low (say 0.1% of CWT release group size for fish released at Jersey Point, SJRTC 2008, Table 14), leading to poor precision of estimates. Second, when the Old River channel is available for entrance (i.e., HORB is not in place), some unknown portion of downstream migrating juveniles may move through the Old River channel to the delta salvage operations where they may be collected, transported and released at one of four locations: just above Antioch Bridge in the San Joaquin River below Jersey Point; two locations near the confluence of Horseshoe Bend and the main Sacramento River channel; and at an unspecified location on the north bank of the San Joaquin River off Sherman Island. Although all of these release locations would appear to make fish vulnerable to capture in the Chipps Island trawl, availability to the Antioch trawl seems certain only for those fish released above the Antioch Bridge. Third, the above kind of analysis ignores a data source of substantial value in analysis of CWT recovery data: ocean catch sampling. Ocean fisheries are sampled in a rigorous fashion, with a target 20 percent sampling fraction in commercial and recreational fisheries, thus allowing unbiased estimation of the number of fish from particular CWT groups that are landed in ocean fisheries.

The analysis limitations identified in the above paragraph have been addressed in two very different manners. First, both Newman (2008) and SJRTC (2008) have advocated use of a "combined differential recovery rate" to estimate survival from Durham Ferry or Mossdale to Jersey Point. This calculation is similar to the ratio of recovery rates of paired groups at the Antioch and Chipps Island trawls, except that estimated ocean catches over the lifespan of the release groups are included in the group-specific recovery rates. Addition of these ocean recovery data helps address concerns regarding low recovery rates in the Antioch and Chipps Island trawls and should greatly improve the precision of estimation. The other issue (unknown migratory pathways) has been addressed in two quite different manners.

Conventional Analyses Reported in SJRTC (2008).

Several provocative and informative figures were included in the useful 2008 Summary of the VAMP Program (SJRTC 2008). First, to address the confounding issue that migratory path of downstream migrants is unknown for many releases (see below), SJRTC (2008) plotted calculated combined differential recovery rate estimates of survival as a function of Vernalis flows for paired releases *for which the HORB was installed* (Figure 14 from SJRTC 2008). Assuming that the HORB indeed prevented downstream migrants from passing through the Old River system to the pumps, these data should display survival rates for fish known to have migrated through the mainstem San Joaquin channel. Although the ranges of flows displayed on this figure is limited to about 2,500 - 6,500 cfs under which the HORB may be installed, plotted data do suggest a strong positive association of survival with Vernalis flow. Also, the range of survival rates (from near 0% to near 50%) is very substantial. The clear suggestion from this plot is that, over this range of flows, increased flow has had a very strong positive influence on survival rates through the Durham Ferry or Mossdale to Jersey Point reach with the HORB installed.

A second provocative figure from SJRTC (2008) consisted of estimated survival rates of fish released at Durham Ferry or Mossdale plotted against Vernalis flow for release periods when the HORB was not in place (Figure 15). No dependence of survival rate on flow is evident from this plot. Our panel finds it difficult to interpret these data, however, as the migration paths taken by fish are unknown for all of these releases.

Our Panel was also struck by an apparent striking trend toward reduced estimated survival rates from Durham Ferry/Mossdale over the period 1997 through 2006 (Figure 13 in SJRTC 2008). We explored this issue in further detail by plotting in Figure 8 the estimated survival rates against year for Dos Reis to Jersey Point (all available years) and Mossdale to Jersey Point (only years when the HORB was installed). (All of these release groups would have been expected to take the mainstem San Joaquin migration route,¹ though distances of migration to Jersey Point differ by about 5 miles.) When these survival rates were grouped by four different flow intervals (very low, low, moderate, high), a trend of decreasing survival rates seemed evident for all flow groupings. Nevertheless, mean survival rates remain positively associated with flows (Figure 8).

¹ The panel is aware that some fish released at Dos Reis could enter the upper Old River, especially if released during a strong flood tide, but we are assuming this does not happen to a significant number of fish.

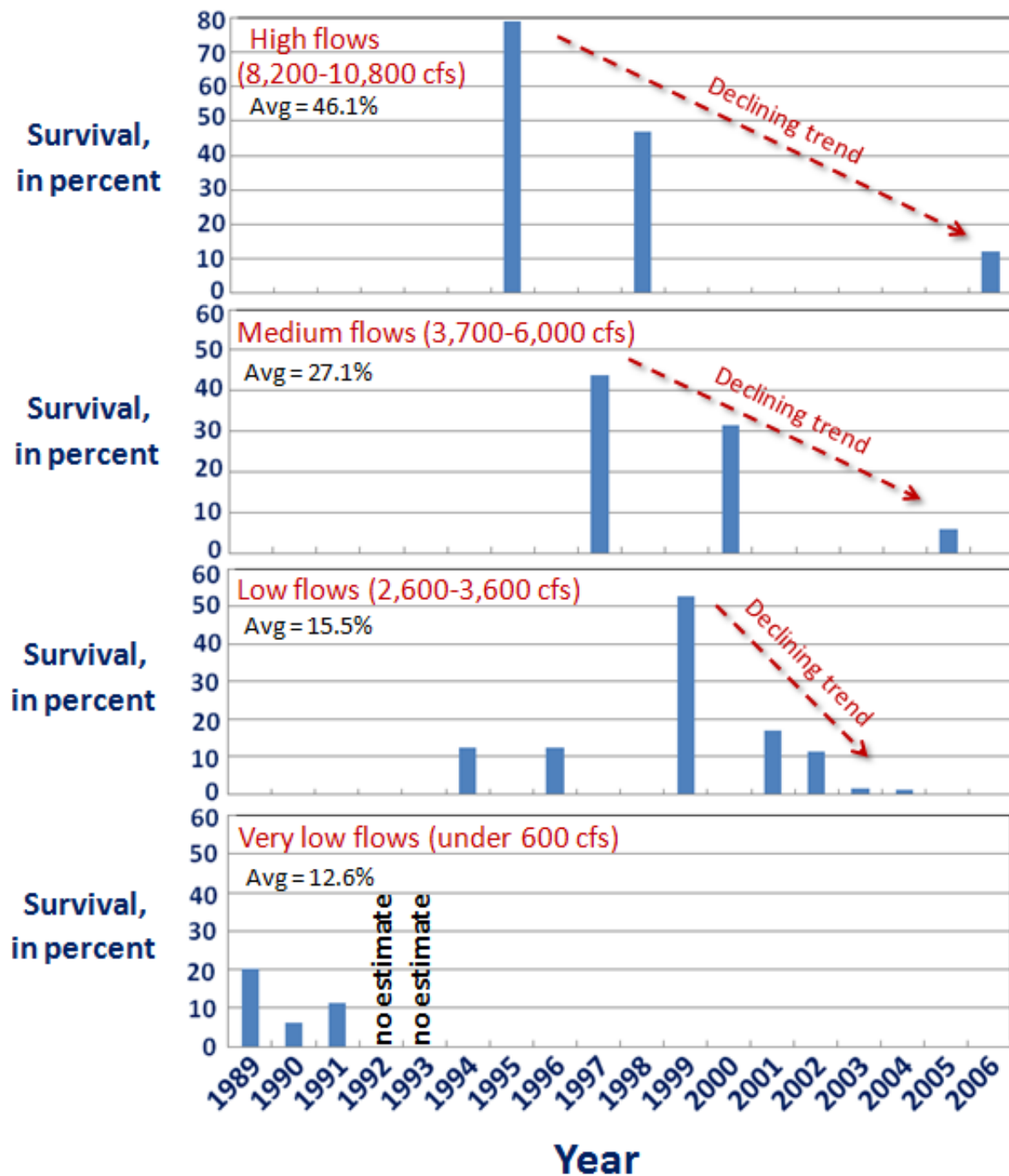


Figure 8 -- CWT smolt survival estimates along the mainstem San Joaquin River to Jersey Point for various ranges of flow at Dos Reis. Data are for all releases at Mossdale (with HORB in place) and Dos Reis. For years with multiple releases, the survival estimates were averaged to obtain a single estimate. Data are based on Table 5 from Newman (2008). The analysis assumes that because Mossdale and Dos Reis are only about 5 miles apart, survival from the two locations should be similar when no flow is being diverted into upper Old River.

Newman's (2008) Bayesian Hierarchical Modeling Analysis Results

Newman's (2008) analyses of San Joaquin VAMP-related CWT recovery data relied upon a considerably more sophisticated statistical analysis approach. Review panel members were not well qualified to fully assess the mathematical or statistical merits of this approach, so we comment instead on the important findings that emerge from Newman's work and also on some analysis issues which we find problematic.

Using Bayesian Hierarchical Modeling (BHM), Newman characterizes the nature of VAMP CWT recovery data at three hierarchical levels. At "Level 1", recoveries of fish released at various locations (Durham Ferry, Mossdale, Dos Reis, Old River, Jersey Point) are assumed to be multinomially distributed with multinomial parameters expressed in terms of the survival rates that are of ultimate interest (e.g., survival from Mossdale to Jersey Point) and unknown recovery parameters that are assumed the same for different groups (e.g., recovery rate between Jersey Point and Antioch given that a fish has survived to Jersey Point). At "Level 2", the logits of these survival and recovery rates are modeled as linear functions of covariates such as Vernalis Flow and export flows. Finally, at "Level 3", the model parameters from Level 2 are assumed to follow normal distributions or inverse gamma distributions (variances only). The Level 3 specifications are for *prior* probability distributions of the unknown model parameters that theoretically are driving relationships of interest.

Also unlike the analyses carried out in SJRTC (2008), Newman does not separate his analyses according to whether or not the HORB is in place. Instead, he introduces a model parameter which accounts for the proportion of downstream migrants which use the Old River channel as their migratory route. The recovery rate of a group of fish released above Old River can then be expressed as the sum of recoveries from those fish that enter the Old River channel and those that remain in the main channel. This unknown "diversion" parameter and survival from Old River to the Jersey Point "reach" then become additional parameters subject to estimation. The BHM approach allows comparison of alternative models relating survival and recovery rates to flows (via comparison of Deviance Information Criterion values), and generates "posterior" distributions of parameters (e.g., survival rates from Dos Reis to Jersey Point) that are consistent with the data that have been collected in VAMP experiments. Chief among the conclusions arrived at by Newman include the following:

1. Posterior mean survival probabilities for 35 different "release sets" provide consistent evidence that survival rates from Dos Reis to Jersey Point exceed those for fish that migrate via Old River and successfully navigate through the Delta to the mainstem San Joaquin and/or Sacramento rivers or are salvaged, trucked and transported back to the mainstem San Joaquin and/or Sacramento rivers (his Figure 27). Thus, if the HORB effectively keeps fish out of Old River, survival of downstream migrants should be improved.
2. There was a positive association between expected mainstem San Joaquin flow at Dos Reis and survival from Dos Reis to Jersey Point (Newman 2008, p. 75, and Newman workshop presentation, slide 19). In contrast to the SJRTC (2008), this finding

applied to the full spectrum of flows that have been encountered at Dos Reis (i.e., was not restricted to relatively low flow periods when the HORB was in place).

3. There was no clear association between survival probabilities and export flows.

As noted above, when fish are salvaged at the Delta pumps and are thereafter trucked and released, their release locations have been variable and have not always been in the mainstem San Joaquin River near Jersey Point. Instead, substantial numbers of salvaged fish have been released near Horseshoe Bend on the mainstem Sacramento River. It seems unlikely for any of these latter releases to be captured at Antioch and it may or may not be reasonable to expect them to have the same recovery rates at Chipps Island as those released near Jersey Point. For that reason, we express some misgivings concerning the merits of the differential mean posterior survival rates found by Newman (point number 1, above). In his Level 1 models, his formula (40) assumes that fish passing through Old River experience the same recovery probability between Jersey Point and Chips Island as for fish released at Jersey Point or fish passing through the mainstem San Joaquin River channel. Given the variable release locations for salvaged fish and the recent acoustic tagging information suggesting that at low flows few fish may survive from Old River to Chipps Island unless they are salvaged, trucked and released, we suspect that this assumed equality of recovery probabilities may be in substantial error. We recognize, of course, that because CWT recovery data allow just a single recovery location to be known for any individual fish, it is therefore impossible to know the actual migratory paths taken by individual fish.

Conclusions

Based on CWT recovery data from the VAMP and earlier programs, the panel believes that San Joaquin flow does affect survival of San Joaquin River salmon smolts, but given the extremely low recapture rates and high standard errors associated with CWT mark-recapture studies, these studies have provided an imprecise approach for estimating the effects of flow on survival in an estuarine system as complex as the Delta. The large amount of environmental “noise” associated with measuring survival in the Delta under conditions of high predation rates, large tidal variations in flow, and large variations in water quality make the detection of associations between survival and the three primary covariates (San Joaquin River flow, exports, and HORB placement) difficult using any approach. There is no guarantee that continued sets of CWT studies, if repeated for additional years, would substantially improve our understanding of the importance of flow for downstream migrant survival.

We believe that the recent introduction of acoustic tagging technologies (beginning first in 2006 and with substantial success in 2008 and 2009) for estimation of short-term survivals of juvenile Chinook through various alternative migratory routes provides a much improved basis for future understanding of the role of San Joaquin River flows on survival of downstream migrating Chinook.

C. Acoustic Tagging.

The VAMP program began using acoustic telemetry in 2006 with an objective to obtain improved information on the movement histories and survival of juvenile fall Chinook salmon migrating through the lower San Joaquin River and the Delta. Studies were conducted over the next 3 years to assess the relative impacts of changes in

Vernalis flow and SWP and CVP export rates on the survival of smolts passing through various reaches of the delta. Challenges to meeting specific study objectives included equipment failure, high rates of predation and a narrow range of flow/export conditions. What the acoustic telemetry studies did show, however, was that survival rates of smolts through the delta were quite low. These new low estimates of survival rates were consistent with recent estimates based on coded-wire tags.

Despite challenges associated with the application of new technology, the panel believes that the VAMP technical team has pursued a worthwhile shift away from coded-wire tag to acoustic-tagging studies. Acoustic telemetry requires fewer test fish, yields much higher precision in estimating short-term survival probabilities, and allows identification of route-selection and reach-specific survival information for juvenile salmon. While shortcomings in acoustic tagging do exist (such as tedious data processing, acoustic background noise, and difficulties in identifying a live acoustic-tagged salmon from a dead acoustic-tagged salmon inside a predatory fish), it seems likely that over the next few years improved technology and software processing will largely overcome these shortcomings.

Because acoustic tagging (AT) technology allows unambiguous identification of migration routes for individual fish, it answers a nagging uncertainty that has plagued many VAMP studies since their inception: estimating the proportion of juvenile salmon that migrate into the head of Old River as compared to the proportion that stay in the mainstem San Joaquin River. Acoustic tagging studies also can be used to estimate how many salmon survive through the entire entrainment, salvage, transportation and release process for the south Delta fish facilities and how that survival compares to estimates of through-Delta survival. Comparing these survivals is important to fully understand the effect of exports on overall survival from the San Joaquin River and to assess certain management actions that might be taken.

The VAMP study team has done an admirable job of learning how to apply AT technology in a complex environment. Although useful experience and scientific information has already been gained from experiments conducted for VAMP since 2006, additional study is needed to determine if consistent relationships exist between flows, exports and smolt survival. Technology problems with failed receivers and poor battery life plagued AT studies in 2007 and 2008. In addition, the 2009 study was unable to monitor fish survival to the downstream locations of Jersey Point and Chipps Island. Other issues include low survival estimates in 2009, especially in the Stockton Deep Water Ship Channel (DWSC), which we believe deserves further study.

Despite challenges, our Panel believes that if smolt survival studies are adequately funded and successfully implemented, the next few years should reveal whether definitive relationships exist between salmon survival and flow. For example, the planned use of supplemental releases to increase sample size in 2010 is a good approach. The panel supports implementation of the 2010 study design with the caveat that it needs to be repeated under a different set of flow conditions. Efforts directed at monitoring at Jersey Point should be added in future years.

Our brief review of the technical program suggested several areas of opportunity for future AT studies as outlined below:

- The high cost of the system and tags has affected the overall study design and sample size required to obtain precise estimates of survival versus flow conditions. One advantage of the current AT system is that much of the monitoring equipment is largely paid for. However, the system consists of complex underwater receivers with long cables and is subject to difficult operation, maintenance, retrieval, and cabling logistics. The VAMP needs to continue to work closely with the AT vendor to improve issues related to tag failure, tag life, tag size/weight, and to reduce cost for all parts of the system.
- The release strategy for AT studies did not appear consistent relative to environmental conditions that influence fish behavior, specifically whether tagged smolts were released in the day versus night and at what tidal stage. Consistency is important to achieve greater precision among replicate releases. For example, diel differences in smolt behavior are well documented for freshwater migration that includes periods of feeding as well as active downstream movement (reviewed in Dauble et al 1989). In addition, previous studies in the Columbia River estuary (Carter et al 2009) indicated that subyearling Chinook salmon exhibited greater movement seaward under conditions of ebb tide. Other experimental goals should include having test fish representative of the naturally-produced fall Chinook salmon population in terms of source, condition and size at release.
- Apparent loss (up to 20 percent within the first 48 hrs following release) of smolts has compromised the experimental design. These results suggest the need to better identify what is sometimes called “tagging effect” or latent mortality of smolts due to tag implantation/handling and how to improve tagging/release procedures or to incorporate this effect (if present) into the release strategy.
- Researchers discussed potential issues with “noise” and signal processing across the range of stations. It is not clear that these issues have been resolved as they relate to maximizing measures of detection probability and ultimately estimates of survival (Vogel 2010).
- In future, it would be useful for researchers to more broadly interact with scientists currently working with a range of acoustic tagging systems, (e.g., HTI, Vemco, JSATS, Lotek, Sonotronics). There are lessons that could be shared in terms of tagging/surgery methods, deployment options for receiving systems, and improvements in data management/processing. A recent review by McMichael et al (2010) sheds some light on some of these issues.

Part IV. Issues of Concern or Importance that Merit Additional Attention.

A. Predation

Loss of juvenile Chinook salmon due to predation in the Delta is not a new issue. For example, as part of the CALFED Science Program, a workshop was held in 2005 to examine predation at the SWP/CVPP intake facilities. Although striped bass appeared to be the principal culprit, Sacramento pike minnow, largemouth bass, and white catfish also prey on juvenile salmon. What appears to be missing from studies conducted to-

date is an ecological context. For example, how do predator populations vary in time and space? What is the potential for “cascading trophic interaction” or large-scale shift in the food chain to occur as a result of changes in population size of other prey species such as delta smelt? Additionally, it would be useful to know how predator populations respond to changing hydrodynamic and water quality conditions in the Delta. Finally, studies conducted to-date may lack information on Delta-wide predation in relation to water project operations (Kimmerer and Brown, 2006).

More recent limited scope studies were conducted on striped bass movement near the Tracy Fish Facilities in relation to juvenile salmon migration behavior (Vogel 2010). These studies were part of ongoing efforts to characterize acoustic “tracks” of juvenile salmon and predators for assessing distinct signatures that would verify loss of smolts due to a predation event. Although this approach could provide useful information for estimating impacts due to predation, it does not address the larger issue of Delta-wide predation. Particularly disturbing is the affect of high rates of predation on the ability to estimate survival. For example, the 2009 studies showed that using tag detection data alone to estimate smolt survival (and apparent movement relative to hydrodynamics) was confounded by predation events and subsequent predator behavior. Additionally, data-processing time required to separate the tracks of actively-migrating smolts from those presumably consumed by a predator is considerably longer than for traditional auto-tracking methods.

It seems clear that meeting smolt survival objectives will be difficult at best without better understanding and some resolution of the predation problem.

B. Installation of a Physical Barrier at Head of Old River (HORB)

As noted in the previous section, survival rates of Chinook salmon smolts through the Old River/Middle River system are considerably less than survival rates through the mainstem San Joaquin channel. At the head of Old River, the San Joaquin channel divides and upwards of 50 percent or more of the San Joaquin River exits the main channel via Old River. Diversion into Old River presumably is influenced by tides, channel hydraulics, mainstem flows, and export flows that draw water into Old River. Because smolts generally follow downstream bulk flow, it is reasonable to assume that the percent of smolts diverted into Old River will be highly correlated with the percent of mainstem discharge that is diverted into Old River.

Recent acoustic tagging data generated with no physical barrier in place showed that 60 percent of migrants entered Old River without barriers in place; 35 percent continued down the San Joaquin River, and 5 percent were lost to Turner Cut (Skalski and Buchanan, personal communication). These new data provide additional confirmation of the value of a physical barrier (HORB). Due mostly to issues related to delta smelt, installation of a physical barrier was recently abandoned. Given the demonstrated benefits of the HORB to survival of downstream migrating Chinook salmon smolts, we believe that more thought needs to be given to weighing the benefits of HORB installation against possible impacts to other species.

A physical HORB installation should provide the following two benefits: (1) prevent migration through the Old River Channel where survival rates are reduced, and (2) ensure that essentially all San Joaquin flow proceeds down the main channel, thereby presumably enhancing smolt survival via a mainstem flow effect.

Implementation of an operable barrier to Old River such as an Obermeyer Gate (Obermeyer 2010) could control flows into Old River for multiple purposes including (a) improving Chinook salmon smolt survival; (b) managing flows in the San Joaquin River to eliminate low dissolved oxygen problems near Stockton; (c) flood control; (d) increasing exports during periods when controls exist on Old and Middle River (OMR) flows; and (e) possibly managing negative OMR flows to minimize entrainment of delta smelt at the pumps.

If an Obermeyer Gate is considered, it should be located near the edge of the hydraulic flow line of the main channel of the San Joaquin River. Data support that in-river structures such as a fill dam, but also bridge abutments, scour holes, piers and pump stations, provide habitat for predators in this reach of the river (Dave Vogel, personal communication). The position of the original HORB was set back into the entrance of the channel leading into Old River. This site was chosen most likely for ease and cost to construct and remove. Unfortunately, it also set up hydraulic conditions ideally suited for predators: slack water and cover. If a future HORB is constructed, alignment along the San Joaquin embankment would create a higher sweeping velocity down the main channel, would move smolts more swiftly past this location, and should reduce predator habitat.

An Obermeyer Gate could be opened and closed any time during the year and on short duration cycles. By studying salmon smolt behaviors, such a gate at this site (and possibly other locations where downstream migrants might be diverted to off-channel routes) would enable appropriately timed closure to minimize ingress into channels where survival is known to be low. Although such gates are not without disadvantages, they are the closest engineered solution to having a natural channel configuration when not closed. They also offer experimental flexibility impossible with a fill structure and they offer potential to balance competing interests for water among different uses by designing scheduled operations that balance competing demands.

C. HORB versus Delta Smelt

In this report we have discussed the ample evidence that suggests a physical HORB has benefits for improving survival of outmigrating San Joaquin River juvenile Chinook salmon through the Delta. Not only is the physical barrier nearly 100 percent effective at preventing salmon from entering Old River where survival is known to be very low, but it also approximately doubles the flow of water down the mainstem San Joaquin River to Stockton which may significantly improve survival through that route, especially during periods of low flow. Even if a non-physical barrier were fully effective at deterring salmon entry into Old River, it would not provide the added benefit of redirecting greater flows down the mainstem of the San Joaquin River.

Since 2008, a physical barrier during spring has not been installed at the Head of Old River because of concerns regarding delta smelt. The management decision on whether or not to install the barrier has often been described as a tradeoff between choosing protections for delta smelt or salmon. The panel does not believe this is the real tradeoff, and we would simply like to make that point. The Reasonable and Prudent Alternative to protect juvenile delta smelt under the 2008 USFWS Biological Opinion requires only that Old and Middle River (OMR) flows during March to June be maintained somewhere in the range of -1,250 cfs and -5,000 cfs (with the actual value

determined based on recommendations from the Smelt Working Group). As long as an OMR standard is no more restrictive than -1,250 cfs, the standard can usually² be met either with or without a physical HORB in place without requiring exports to be any lower than the required minimum of about 1,500 cfs. Without a physical HORB in place, the difference is that a specific OMR standard can be met while allowing a higher export flow. The tradeoff then, is not one between delta smelt and salmon, but one between species protection (mostly salmon³) and water supply. Given the current demands for water from the Delta, the latter tradeoff may create an even more difficult choice than one between species. The panel has no recommendations regarding that tradeoff. It is a difficult one. We support, however, the placement of an operable gate at the HOR, so that it would allow more options for managing the system.

D. Importance of Full Life Cycle Perspective

To date, three types of tags have been employed in the VAMP to assess juvenile behavior and survival: coded wire tags (CWT), radio tags (RT), and acoustic tags (AT). Both RT and AT allow for mobile tracking with similar tag burden and both have limitations with respect to battery life that preclude estimation of long-term survival. In contrast, CWTs are less obtrusive with the advantage of lasting through the entire life cycle.

The current VAMP program favors the use of acoustic tags because they provide more precise estimates of route-specific survival with fewer fish. For example, recent AT experiments involved ~1,000 fish while CWT releases averaged close to 50,000 fish in some years. A missing element of the current AT approach is a measure of how in-river conditions affect ocean survival and adult return. Thus, the program has no life cycle perspective. For example, the AT approach, while appropriate for examining smolt survival in the Delta, does not provide a means to assess relationships between smolt versus adult population size, (i.e., the ratio between smolt numbers and adult returns). In the absence of a coded-wire tag program, how will the goal of increasing adult production two-fold be measured? For example, little seems to be known about the adult return rate of various “treatment groups” of migrants. Examples of key questions that should be considered in future tagging investigations include whether salvaged juvenile migrants are less successful than main channel juvenile migrants in returning to the mainstem San Joaquin channel as mature adults; if Old River migrants return more (or fewer) adults than main channel migrants; and if years experiencing high flow conditions return more adults than low flow years.

In order for the overall recovery program to be successful, juvenile survival studies need to be integrated with studies of ocean survival, in addition to measures of wild and hatchery adult escapement. Additionally, adult production goals are not likely to be achieved unless tagging and recovery studies accommodate questions broader than the question of juvenile survival as affected by flow modifications and export pumping operations. Therefore, we caution against exclusive use of acoustic tags and elimination

² Assumes open culverts are installed under the HORB and that the sum of Contra Costa Water District diversions from Old River and south Delta channel depletions are not greater than a few hundred cfs.

³ The panel does believe that for a given OMR flow standard, the placement of a physical HORB should provide some additional benefits to delta smelt as well as salmon because of the boost in flow down the San Joaquin River it creates.

of CWT releases. Instead, we believe that limited releases of CWT fish will be critically important in the future.

Part V. Recommendations for Future Studies

1. Hydrodynamic modeling and additional hydrodynamic measurements

Hydrodynamic and particle-tracking models could be used to estimate reach-specific transit times of neutrally buoyant particles to compare with fish movements. Behavior could be assigned to particles to simulate fish movement and to assist in understanding fish behavior. It might be worthwhile to do detailed 3-D hydrodynamic modeling in the HOR junction to more fully understand water movement there and how they might affect movements of Chinook salmon smolts. Additional measurements of the velocity field in the HOR junction could be made with HF Radar systems (CODAR) or by flow mapping using downward-looking acoustic Doppler current profilers mounted on remote-controlled robotic boats available to DWR and USGS.

2. Need for more information on fine-scale movements of fish in the mainstem SJ channel below Dos Reis.

If new management actions are to be successful (such as installation of an Obermeyer Gate at the Head of Old River) more information will be needed on fine-scale movements of smolts as they are affected by various factors that may influence migratory behavior. Wilder and Ingram (2006) have already found valuable evidence suggesting that salmon smolts are primarily diurnal during spring and nocturnal during fall, and more active at crepuscular periods. Using mobile telemetry of acoustic-tagged smolts offers a promising new way to observe fish behavior *in situ* and to expand upon information learned previously by trawl sampling continuously for 24 hours at a single location as was done by Wilder and Ingram (2006). Examples of questions that might be addressed include: How do smolts respond to tidal flows? Are smolt movements typically diurnal, moving by day and holding by night (or vice-versa)? Do most fish enter Old River and Turner Cut on the flood tide? How do daily variations in the magnitude and phasing of the maximum ebb and flood tidal flows affect the rate of smolt progress through the estuary? Do diel activity patterns in juvenile salmon change in response to environmental conditions? Either radio tags or acoustic tags could be used for such studies.

3. Possible uses of PIT Tags in the San Joaquin River system.

The panel believes that consideration should be given to the use of Passive Integrated Transponder (PIT) tags for selective studies of smolt behavior and survival. PIT tags have an advantage over acoustic and radio tags due to their smaller size/weight and less obtrusive tagging methodology. Thus, PIT tags are less likely to affect the relative fitness or survival of test fish. In addition, PIT tags have a passive rather than active signal that allows for interrogation over the full lifespan of San Joaquin Chinook salmon. An advantage over coded wire tags is that PIT tags can be detected at many different locations and times without the need to sacrifice fish to decode tags.

A serious limitation of PIT tag technology, however, is that fish must pass within a meter or so of a tag reader in order for a tag to be detected. Thus, options for applying this technology to the VAMP study are restricted to locations where fish can be collected and handled. Promising application contexts might include monitoring releases of test fish moving from the head of Old River to recovery at Clifton Court and Tracy Fish Salvage operations. Depending on availability of test fish (i.e., sample sizes requirements for desired level of accuracy/precision), PIT-tagged fish from these and other release scenarios could be recovered by trawl in the lower river and estuary, perhaps Chipps Island.

NOAA Fisheries has used a surface pair-trawl effectively in the lower Columbia River to obtain precise survival estimates for smolts migrating past Bonneville Dam. Fish entering the trawl body exit after passing by a detection antenna in the open cod end. There is no handling of target species and no retained by-catch of other species. This approach generated detections of nearly 2% of PIT tags previously detected at a point 159 km upstream of the study area (Ledgerwood et al. 2004). Higher capture efficiencies of smolts might be possible in the Delta area due to smaller water volume. PIT tags could also be detected on spawning grounds.

4. Installation of Physical HORB

We believe that existing information provides a compelling basis to conclude that survival rates of Chinook salmon smolts moving through the Old River system are considerably less than for those moving through the mainstem San Joaquin River. For that reason, we believe that anything that can be done to increase directed movement of smolts downstream in the mainstem River and out of the south Delta "confusion zone" would be expected to benefit smolt survival if for no other reason than to speed entry to the estuary and subsequently reducing the encounter rate of predators. The bubble curtain, as currently implemented, does not include local hydraulics in its design, and thus does not consider a key factor influencing smolt behavior. Therefore, we consider that installation of a physical HORB is highly desirable. We believe that an Obermeyer Gate should be located near the edge of the hydraulic flow line of the main channel of the San Joaquin River and that it should be closed during the period of downstream migration of San Joaquin Chinook salmon smolts.

5. Predation Studies.

We recommend studies to more broadly characterize predator seasonal distribution, abundance and feeding habits in order to better determine the extent of predation, including identification of "hot spots" or locations where predator abundance leads to especially high mortality of Chinook salmon smolts. For example, presence of engineered structures and/or water export operation may increase the encounter rate of predators and smolts over that which would occur in a more natural system (Vogel, 2010). Immediate action should be taken to quantify, monitor and mitigate these effects. One area of research might focus on improving the "fish-friendliness" and hydraulic "efficiency" of capturing (Gingras 1997, Ott 2005, Clark et. al. 2009, Kimmerer and Brown, 2006), handling and releasing juveniles (including smelt) and isolating them from predators during these procedures. Additionally, the panel believes that current release strategies for smolts captured at export facilities could be improved to minimize predation at the point of release. We do not, however, endorse a predator control program at this point given competing objectives of resource management agencies and

general lack of information on predator populations in the Delta. However, against the backdrop of such high rates of predation, occurring during the critical estuary-entry stage of the fall Chinook salmon life cycle, assessing relationships between flow, export volume and smolt survival will be difficult at best.

6. Continued Improvements in CHTR

Panel members were unanimous in their belief that it is advantageous to promote downstream migration through the mainstem San Joaquin channel and to minimize migration through the Old River route. Nevertheless, we were all unanimous in supporting continued efforts to improve CHTR, in particular to reduce pre-screening mortality and predation in the Clifton Forebay (Gingras 1997, Ott 2005, Clark et. al. 2009) and to improve release practices so as to enhance survival of trucked smolts.

7. More Frequent VAMP Program Reviews.

Given the rapid changes in tagging technologies and recent evidence of extremely low survival rates of Chinook salmon smolts migrating through the San Joaquin River/Delta system, we believe that it will be important to review VAMP program findings on a more regular basis. We recommend that such reviews be made every three years.

8. Adequate VAMP Funding.

Funding should ensure that experimental designs of studies make good sense and that small shortfalls do not result in substantial loss of information that results from a relatively modest shortfall in anticipated funding. For example, due to budget shortfalls, the 2010 acoustic tagging program does not include recovery arrays at Jersey Point, thereby diminishing the information content of this year's studies as compared to previous years and also contributing to interannual variation in the adopted experimental design.

Part VI. References

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Appendix A. Documents that the Independent Review Panel was asked to review

Each independent review panelist was given access to the following electronic documents to review prior to attending the two-day public meeting: These reports can be found on the San Joaquin River Group Authority website at:

<http://www.sjrg.org/peerreview/>.

- a) Newman, KB. 2008. An evaluation of four Sacramento-San Joaquin River Delta juvenile salmon survival studies. Report for CALFED Science Program Project # Sci-06-G06-299 and peer reviewer's comments on a previous version of the report and model. (This report contains the analysis of four release and capture studies one of which is the VAMP. Portions of the report are specific to the VAMP while other portions discuss the analytical methods common to all of the studies. The panel was only asked to review those sections specific to VAMP.)
- b) Holbrook, C. M., Perry, R., Adams, N., 2009. Distribution and Joint Fish-tag Survival of Juvenile Chinook Salmon Migrating through the Sacramento-San Joaquin River Delta, 2008.
- c) Bowen, D. M., Hieber, S., Hueth, C., Maisonneuve, V., 2009. Technical Memorandum 86-68290-11: 2009 Effectiveness of a Non-Physical barrier at the Divergence of the Old and San Joaquin River (CA).
- d) Brandes, P., Adams, N., Holbrook, C., Burau, J., Vogel, D., Foott S., Nichols, K., Hanson, C., and W. Stringfellow. 2009 VAMP Study Plan Proposal - Survival and distribution of migrating juvenile Chinook salmon in the San Joaquin River and Delta. April 16, 2008.
- e) San Joaquin River Authority. 2007. 2006 Technical Annual Report On Implementation and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan
- f) San Joaquin River Authority. 2009. 2008 Technical Annual Report On Implementation and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan

Additional reports for the purpose of historical context:

- a) Brandes, P., et. al., 2008. Summary Report for the Vernalis Adaptive Management Program (VAMP) for the experimental determination of juvenile Chinook salmon survival within the lower San Joaquin River in response to river flow and State Water Project (SWP) and Central Valley Project (CVP) exports, 2000-2008.

Appendix B. Agenda from March 2-3, 2010 VAMP Review

Agenda

March 2, 2010

0900 Welcome – Cliff Dahm, PhD, DSP Lead Scientist

Introduction of the panel

0915 Dennis Dauble, PhD, Washington State University

0920 David Hankin, PhD, Humboldt State University

0925 John J. Pizzimenti, PhD, GEI Consultants Inc.

0930 Pete Smith, PhD, USGS retired

Presentation by VAMP investigators

0935 Purpose of Review, Background, Diane Riddle (SWRCB)

0950 Study Design and Implementation, Bruce Herbold (USEPA)

1020 Break

1040 Hydrology, Mike Archer (MBK Engineering)

1110 Coded Wire Tag Study Results, Ken Newman (USFWS)

1145 Lunch

1300 2008 Acoustic Telemetry Studies, Chris Holbrook (USGS)

1330 2009 VAMP Study Results, Rebecca Buchanan (University of Washington)

1400 2009 Evaluation of Non-Physical Barrier, Mark Bowen (USBR)

1430 2010 Study Design, Pat Brandes (USFWS)

1445 Agency and Public Comments

1500 Break

1520 Facilitated discussion – Cliff Dahm, PhD – DSP Lead Scientist

1630 Recap - Cliff Dahm, PhD - DSP Lead Scientist

1645 Adjourn

March 3, 2010

0900 to 1200 – Panel will deliberate in private

0930 Continued facilitated discussions and invited presentations

1145 Lunch

1300 Presentation by Independent Review Panel – Initial Assessment and Impressions

1400 Facilitated discussion - Cliff Dahm, PhD - DSP Lead Scientist

1500 Adjourn

Appendix C. Brief Biographical Sketches for Review Panel Members.

Dr. Dennis D. Dauble

Dr. Dauble received his B.S. and Ph.D. from Oregon State and his M.S. from Washington State. He has been an Adjunct Professor at the WSU-Tri Cities branch campus since 1990. During this time he has taught graduate-level coursework in Biology and Management of Fishes and Fish Ecology. Dr. Dauble achieved Fellow status in 1998 in the American Institute of Fishery Research Biologists. He received a Laboratory Directors Fitzner-Eberhardt Award in 1999 for outstanding contribution to science and engineering education. Recent consulting activities since retirement have included working with Northwest Anthropology LLC on issues relating to traditional fishing practices of American Indians in the mid-Columbia region.

Dr. Dauble worked at Pacific Northwest National Laboratory from 1973 until 2009 when he retired. He oversaw business development activities for the U.S. Army Corps of Engineers while serving as Director of the Natural Resources Division from January 2000 to October 2007. Previously, he was Technical Group Manager for the Ecology Group and, prior to that, a Senior Staff Scientist. His technical background includes Endangered Species issues, Columbia River fish passage and behavior, ecological risk assessment and ecological monitoring. He has authored more than 60 peer-reviewed journal and symposium articles, 50 client reports, and made over 120 presentations at scientific symposia, educational workshops and public forums.

Dr. David Gregory Hankin

Dr. Hankin received his B.S. from Reed College and his Ph.D. from Cornell University. He is currently the Interim Associate Dean of Marine Sciences and Professor for Fisheries Biology at Humboldt State University. He serves as one of two U.S. members of the Pacific Salmon Commission's Committee for Scientific Cooperation and recently chaired a PSC Expert Panel on the Future of the Coded Wire Tag Recovery Program for Pacific Salmon.

Dr. Hankin has been a leader in development of survey designs for estimation of abundance of fish (especially juvenile salmon and trout) in small streams. His stream survey design methods have been adopted throughout the Pacific Northwest. His mathematical models of the impact of exploitation on Chinook salmon have formed the basis for harvest rate management of Chinook salmon off Northern California and Southern Oregon and for sharing of allowable catches between commercial, recreational and tribal fishers. His publications on hatchery marking practices to allow statistical separation of returns of hatchery and wild Chinook salmon form the essential basis for "constant fractional marking" programs that have recently been adopted throughout California's Sacramento River system and in the Klamath River system. He is a recognized expert on life history and fishery management of Dungeness crab with special expertise concerning female Dungeness crabs which remain a protected sex.

Dr. John Pizzimenti

Dr. Pizzimenti earned his B.A. at California State University, Northridge, and a Ph.D. from the University of Kansas. From 1974-1977 he conducted National Science Foundation-sponsored research at the Field Museum and University of Chicago; and then served on the faculty of the University of Illinois-Chicago until 1981. Dr. Pizzimenti subsequently began consulting on impact assessment of water resource projects. His experience ranges across the Americas from Alaska to Argentina. Since 1989, his focus has been mostly on anadromous fish and Pacific Northwest environments. He has assembled teams of scientists and engineers who have developed new approaches to problem-solving for federal, state, municipal, tribal governments and the private sector. He is particularly interested in assessing biological efficacy and impacts of engineered structures and has consulted on more than 100 projects involving fisheries, fish passage, fish tracking, dams, reservoirs and regulated rivers. He has served the Northwest Power and Conservation Council's Independent Science Review Panel to review research and mitigation plans for the Federal Columbia River Power System and to make recommendations on Federal Columbia River Power System Operations to improve salmon survival.

Dr. Peter E. Smith

Dr. Smith received his B.S from Villanova University, his M.S from Colorado State University, and his Ph.D. from the University of California, Davis. Dr. Smith is a retired research hydrologist from the U. S. Geological Survey, where he worked for over 31 years. Since retiring from the USGS California Water Science Center in January 2008, he has remained active in environmental consulting and has served on a number of CALFED and Federal agency-sponsored review panels and teams. He is a specialist in estuarine hydrodynamics and modeling with an emphasis on ecological applications. He has particular expertise in the hydrodynamics of the San Francisco Bay-Delta estuary where he has conducted research and studies for 27 years. He served for nine years as the USGS representative to the Management Team for the Interagency Ecological Program of the San Francisco Bay-Delta Estuary, which oversees monitoring and studies programs in the estuary for nine federal and state agencies. He has also served for the past 12 years as a member of the Computational Hydraulics Committee for the Environmental and Water Resources Institute of the American Society of Civil Engineers (ASCE) and for the past 20 years on the advisory committee for ASCE's biannual Estuarine and Coastal Modeling Conferences.

APPENDIX D.

Summary of State Water Resources Control Board Water Quality Control Planning and Water Rights Information Relevant to the March 2010 VAMP Review

Purpose of This Document: On March 2 and 3, 2010, the Delta Science Program hosted a workshop for an independent panel review of the Vernalis Adaptive Management Plan (VAMP). As part of that review, State Water Resources Control Board (State Water Board) staff provided a presentation concerning the history behind the San Joaquin River flow objectives and the VAMP and the State Water Board's current efforts to review the San Joaquin River flow objectives. The review panel requested additional information concerning this history and the State Water Board's current process. This document is a final version of the draft summary information provided to the panel. The sources of the information are cited for reference.

Purpose and Applicability of Water Quality Control Plans

See: 2006 Water Quality Control Plan pg. 3 at:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/2006_plan_final.pdf

A Water Quality Control Plan establishes water quality objectives for which implementation can be fully accomplished only if the State Water Board assigns some measure of responsibility to water right holders and water users to mitigate for the effects on the designated beneficial uses of their diversions and use of water. A water quality control plan consists of: (1) beneficial uses to be protected; (2) water quality objectives for the reasonable protection of beneficial uses; and (3) a program of implementation for achieving the water quality objectives. Together, the beneficial uses and the water quality objectives established to reasonably protect the beneficial uses are called water quality standards under the terminology of the federal Clean Water Act.

The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay Delta Plan; or The Plan) provides reasonable protection for the Estuary's beneficial uses that require control of salinity (caused by saltwater intrusion, municipal discharges, and agricultural drainage) and water project operations (flows and diversions). The Bay Delta Plan supersedes the regional water quality control plans to the extent of any conflict between this plan and the regional water quality control plans. The other plans and policies establish water quality objectives and requirements for parameters such as toxic chemicals, bacterial contamination, and other parameters which have the potential to impair beneficial uses or cause nuisance.

Most of the objectives in the Bay Delta Plan are being implemented by assigning responsibilities to water right holders because the parameters to be controlled are primarily impacted by flows and diversions. A Water Quality Control Plan, however, is not to be construed as establishing the responsibilities of water right holders. Nor is a Water Quality Control Plan to be construed as establishing the quantities of water that any particular water right holder or group of water right holders may be required to release or forego to meet the objectives in the Water Quality Control Plan. Subsequent to establishment of a Water Quality Control Plan the nature and extent of water right holders' responsibilities to meet the objectives will be determined in a water rights proceeding. If necessary after a water rights proceeding, the Water Quality Control Plan will be amended to reflect any changes that may be needed to ensure consistency between the plan and the water right decision.

Periodic and Triennial Review of Water Quality Control Plans

State law requires that state policy for water quality control and water quality control plans be reviewed periodically [CWC §13143, §13240]. Federal law [CWA §303(c)(1)] requires that a state's water quality standards be reviewed every three years, i.e., triennially. These reviews are formal State or regional board actions requiring a resolution adopting the triennial review.

Triennial reviews are comprehensive and include a public hearing to identify issues to be addressed including, but not limited to, the appropriateness of the water quality standards. The review identifies standards that need to be revised, and affirms those standards that are appropriate and require no revision. Information on continuing or new water quality problems, impairment of beneficial uses, or violation of water quality objectives may come from monitoring data, compliance inspections, discharger reports, and public suggestions. Changes in State or federal laws and regulations may also dictate the need for a Plan amendment. The State or regional board evaluates all available information and determines whether revisions to water quality standards or implementation plans are needed and the nature of any necessary revisions. The record and adopting resolution of basin plan triennial review are transmitted by the Regional Board to the State Board, which makes the triennial review available to US EPA.

1995 Water Quality Control Plan

See: 1995 Water Quality Control Plan pg. 19; Decision 1641 pg. 184 at:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/1995wqcp/docs/1995wqcpb.pdf

The 1995 Plan was the first Plan in which the State Water Board established flow objectives for the San Joaquin River to protect fish and wildlife beneficial uses including delta smelt and Chinook salmon. These flow objectives were based on the Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government

(<http://www.calwater.ca.gov/content/Documents/library/SFBayDeltaAgreement.pdf>) and information submitted to the State Water Board during the plan amendment process.

1995 Plan flow objectives were adopted for three different time periods: a fall flow objective during October; spring flow objectives from February through June excluding April 15-May 15, and spring pulse flow objectives from April 15-May 15. The timing of the spring pulse flow period may be varied based on real-time monitoring to coincide with fish migration in the San Joaquin River.

Below is an extracted section from Table 3 of the Bay Delta Plan (page 19) identifying the San Joaquin River at Airport Way Bridge near Vernalis flow objectives.

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [⁴])	PARAMETER	DESCRIPTION (UNIT) [⁵]	WATER YEAR TYPE [⁶]	TIME PERIOD	VALUE
RIVER FLOWS						
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Flow rate	Minimum monthly average [⁷] flow rate (cfs) [⁸]	W,AN	Feb-Apr 14 and May 16-Jun	2,130 or 3,420
				BN,D		1,420 or 2,280
				C		710 or 1,140
				W	Apr 15-May 15 [⁹]	7,330 or 8,620
				AN		5,730 or 7,020
				BN		4,620 or 5,480
				D		4,020 or 4,880
				C		3,110 or 3,540
				All	Oct	1,000 [¹⁰]

The fall flow objective is intended to provide attraction flows for Chinook salmon returning to the San Joaquin River watershed to spawn. The spring flows are intended to provide minimum net downstream freshwater flows to address habitat concerns from reduced flows and water quality degradation. The spring pulse flows were principally developed to aid in cuing Chinook salmon smolt outmigration from the San Joaquin River. The spring flow and spring pulse flow objectives vary based on water year type and the required location of the 2 parts per thousand isohaline, which is a component of the Delta outflow objectives (see Table 3 of the 1995 or 2006 Bay-Delta Plan). The water year types are based on hydrologic conditions in the San Joaquin River watershed and the required location of the 2 parts per thousand isohaline is based on hydrologic conditions in both the Sacramento and San Joaquin River watersheds.

Water Right Decision 1641

See: Decision 1641 pg. 12-17 at:

http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_order/s/decisions/d1600_d1649/wrd1641_1999dec29.pdf

Water right Decision 1641 (Decision 1641) implements portions of the 1995 Plan, including establishing responsibility for meeting the San Joaquin River flow objectives. It recognizes the San Joaquin River Agreement and accepts commitments by the San Joaquin River Group Authority (SJRGa) members, Bureau of Reclamation (Bureau), and Department of Water Resources to assume various responsibilities for the San Joaquin River portions of the 1995 Bay-Delta Plan. Decision 1641 authorizes a staged implementation of the Vernalis pulse flow

⁴ River Kilometer Index station number

⁵ Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

⁶ The Sacramento Valley 40-30-30 Index applies unless otherwise specified.

⁷ Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15 –May15 pulse flow period when this restriction does not apply.

⁸ The water year classification will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification at the 75 % exceedence level. The higher flow objective applies when the 2-ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chipps Island.

⁹ This time period may be varied based on real time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. The USBR will schedule the time period of the pulse or pulsed in consultation with the USFWS, NOAA Fisheries, and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. The schedule is subject to the approval of the Executive Director of the State Water Board.

¹⁰ Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the DWR and USBR in consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation agreement

objectives by allowing the SJRGA parties to meet the VAMP target flows for a period of 12 years in lieu of assigning responsibility for meeting the spring pulse objectives adopted in the 1995 Bay-Delta Plan in order to obtain additional scientific information on which to base long-term objectives. Decision 1641 does not, however, implement the export restrictions specified in the VAMP (see Table 3, page 184 of Decision 1641). Decision 1641 requires the Bureau to meet the spring flow (February through June with the exception of the spring pulse flow/VAMP period) and fall flow objectives (October).

Review of 1995 Water Quality Control Plan

See: Plan Amendment Report, Appendix 1 to the 2006 Water Quality Control Plan pg. 50-64 at:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/2006_app1_final.pdf

During review of the 1995 Bay-Delta Plan, several concerns regarding the San Joaquin River flow objectives were raised. Concerns were raised by the Department of Fish and Game and others regarding the adequacy of VAMP flows, including the magnitude, duration, and frequency, in protecting salmon, steelhead and pelagic fishes.

Concerns were also raised regarding the scientific validity of the VAMP. Conditions related to the pelagic organism decline, fish availability for study purposes, hydrology, the inability to operate the Head of Old River Barrier, and other issues have complicated conduct of the VAMP and required major modifications to the study design that may affect the utility of the study data. This has resulted in concerns regarding the ability of the VAMP to provide information on which to base long-term pulse flow objectives for the San Joaquin River. Furthermore, the VAMP has yet to yield conclusive results regarding needed changes to the spring pulse flow objectives.

In addition, the Bureau raised concerns about its responsibility to meet the spring flow objectives. The Bureau has not met the objectives during several years and argues that it is unable to consistently meet the objectives due to competing demands.

Another issue raised during review of the 1995 Bay-Delta Plan was that the spring flow objectives are based on an agreement rather than science and are not based on hydrological conditions in the San Joaquin River watershed. Although the water year type for the spring flow objectives is determined entirely by conditions in the San Joaquin River watershed, conditions within the Sacramento River watershed often dictate whether the higher or lower flows for each year type apply. The Sacramento River and its tributaries contribute the majority of the flow comprising the Eight River index and as a result largely determine the required Delta outflow. Because the San Joaquin River watershed experiences snow-melt dominated runoff and the Sacramento River experiences both rain-fall and snowmelt runoff, and since the watersheds are situated in different geographical regions, the two watersheds may produce different hydrological conditions. As a result, the higher spring flow objectives may be triggered by wetter conditions in the Sacramento River watershed even when conditions in the San Joaquin River watershed are much drier, and vice versa.

2006 Water Quality Control Plan

See: 2006 Water Quality Control Plan pg. 6, 7, and 25; Decision 1641 pg. 20 at:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/2006_plan_final.pdf

While data submitted by fisheries agencies suggested that various fish species within the Delta and San Joaquin River basin have shown significant signs of decline since adoption of the San Joaquin River flow objectives in the 1995 Bay-Delta Plan and the implementation of the objectives in Decision 1641, the State Water Board did not revise the San Joaquin River flow objectives in the 2006 Bay-Delta Plan due to a lack of scientific information on which to base any changes. The State Water Board determined that additional data and scientific analyses were needed to either support or modify the current objectives. As a result, the State Water Board identified San Joaquin River flows as an emerging issue requiring further consideration along with the effects of San Joaquin River flows on pelagic organisms and requested that the fisheries agencies develop additional information on which to base changes to the objectives. In addition, the State Water Board requested that the SJRGA parties conduct a review of the VAMP.

In the 2006 Plan, the State Water Board did make changes to the program of implementation for the spring pulse flow objectives in order to allow for staged implementation of the objectives, with the first stage consisting of conduct of the VAMP and the second stage consisting of the Board either implementing or revising the objectives.

The interim spring pulse flows (a.k.a. VAMP) may be implemented on the San Joaquin River at Vernalis during the 31-day April and May pulse period in order to obtain additional scientific information concerning flow needs on the San Joaquin River during the pulse flow period, and are identified below (2006 Plan, page 25). The target flows for the pulse period should be based on the existing flow which is defined as the forecasted flows in the San Joaquin River at Vernalis during the pulse flow period that would exist absent the San Joaquin River Agreement or water acquisitions.

Existing Flow ¹ (cfs)	Target Flow (cfs)
0-1999	2,000
2,000-3,199	3,200
3,200-4,449	4,450
4,450-5,699	5,700
5,700-6,999	7,000
7,000 or greater	Existing Flow

During years when the sum of the current year's 60-20-20 numeric indicator (shown below; 2006 Plan, page 25) and the previous year's 60-20-20 numeric indicator is seven (7) or greater, target flows should be one step higher than those required in the above table. The licensee is not required to meet the target flow during years when the sum of the numeric indicators for the current year and the previous two years is four (4) or less.

SJR Basin 60-20-20 Classification	60-20-20 Indicator
Wet	5
Above Normal	4
Below Normal	3
Dry	2
Critical	1

Review of the 2006 Water Quality Control Plan

See: Second Revised Notice for April 22, 2009 Workshop - Consideration of Potential Amendments to the Water Quality Control Plan for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary Relating to Southern Delta Salinity and San Joaquin River Flow Objectives at:

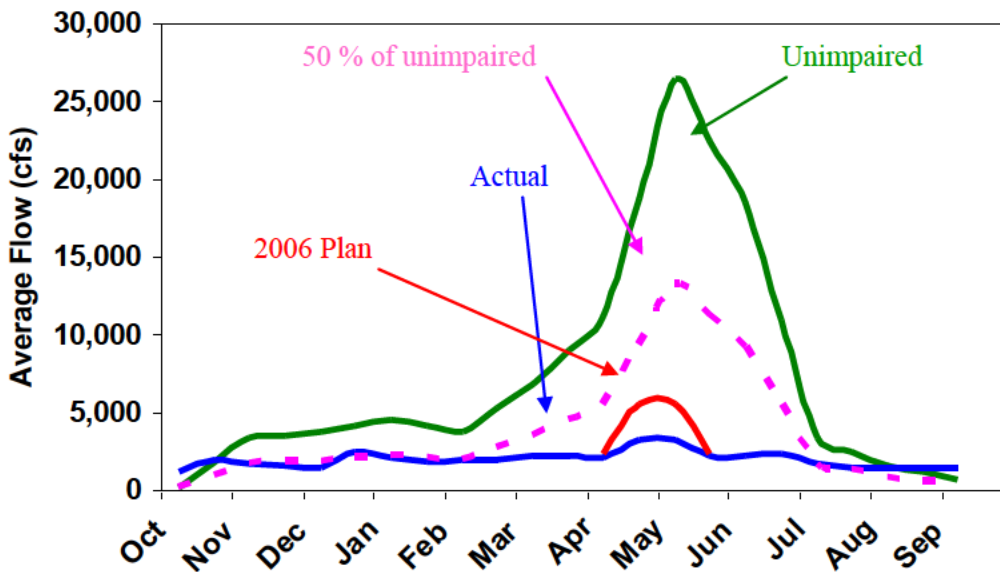
http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/notice2ndrev.pdf

and Powerpoint presentation from meeting (not posted)

The State Water Board is currently in the process of considering potential changes to the San Joaquin River flow objectives and their implementation included in the 2006 Bay-Delta Plan. Following any update of the objectives or their implementation in the 2006 Bay-Delta Plan, the State Water Board will undertake any needed water right proceeding to assign responsibility to water rights holders for meeting the objectives.

The State Water Board is considering alternative flows for the San Joaquin River that are based on modeling using percentages of unimpaired flow (UF). This type of flow would modify the current hydrologic regime to more closely mimic the natural flow regime to which salmonids and other native fishes are adapted. In order to develop reasonable alternatives for San Joaquin River flow objectives, the State Water Board is modeling three alternatives based on a set percentage of unimpaired flows consisting of a high, medium, and low flow alternative. Alternative percentages of UF may be considered for the February through June period (spring period) and may vary by water year type.

For illustrative purposes only, staff prepared a graph depicting flows in the San Joaquin River. The graph is shown below and includes: 1) unimpaired flows in 2003 (a below normal water year), 2) actual conditions which include conduct of the VAMP, 3) the Bay-Delta Plan required flows, and 4) an example of 50% unimpaired flows. The 50% UF example was not chosen for any purpose other than to illustrate the proposed alternatives modeling concept. In general, the graphic shows that the natural hydrograph has been substantially flattened under existing regulations (other years generally show similar flattening effects, though to different degrees).



On Sep 12, 2014, at 1:28 PM, Watts, John (Feinstein) <John_Watts@feinstein.senate.gov> wrote:

Attached are the suggested edits to the salmon title that I sent to Will Stelle, and my request for a call later today or over the weekend to discuss them.

From: Watts, John (Feinstein)

Sent: Friday, September 12, 2014 4:27 PM

To: 'will.stelle@noaa.gov'

Cc: 'Joan R Langhans'; 'Karen Hyun - NOAA Federal'; Albritton, Jason (EPW); Esquivel, Joaquin (Boxer); Yeung, Felix (Feinstein)

Subject: Can we do a call later today or over the weekend to discuss the salmon language?

Will,

Hope you are well and the weather on the Pacific Coast is as beautiful today as it is in DC. Attached are some confidential suggested edits to the language on the salmon title that you sent us last Friday evening. I have attached both a redline version showing suggested changes from what you sent us, and a clean version in case it is easier to read.

Can we set up a call for some time later today or over the weekend to discuss this?

This call would not be primarily intended to focus on the “jeopardy issue,” but instead to focus on other parts of the salmon language, operating from the assumption that we can work out an agreement on a rigorous, quantitative standard for evaluating project operations under the BiOps.

Thanks for all your hard work on this legislative proposal.

Best,

John

202-████-████ direct

<title II redline 09-12-14.docx><title II clean 09-12-14.docx>

Bradley J. Cavallo
President, Senior Scientist
Cramer Fish Sciences
13300 New Airport Road, Suite 102
Auburn CA 95602

office 530.888.1443 ext. 11

mobile ██████████

www.fishsciences.net

www.genidaqs.com

From: Watts, John (Feinstein)
Sent: Friday, September 12, 2014 5:53 PM
To: 'bradley.cavallo@gmail.com'
CC: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'; Yeung, Felix (Feinstein)
Subject: Re: Can we do a call later today or over the weekend to discuss the salmon language?

Brad, Thanks. At this point I will give this to Senator Feinstein on Monday morning.

From: Bradley Cavallo [mailto:bradley.cavallo@gmail.com]
Sent: Friday, September 12, 2014 07:35 PM Eastern Standard Time
To: Watts, John (Feinstein)
Cc: T Birmingham <tbirmingham@westlandswater.org>; Roger K Patterson <rpatterson@mwdh2o.com>; Brenda W Burman <BBurman@mwdh2o.com>; Bernhardt, David L. <DBernhardt@BHFS.com>; Yeung, Felix (Feinstein)
Subject: Re: Can we do a call later today or over the weekend to discuss the salmon language?

Hi John. Brenda indicated that you were looking for a summary of recent juvenile salmon survival data. Below is what I was able to put together. If there is more time, I can flesh this out a bit more- let me know.

The references cited are attached.

-Brad

Tagging studies conducted since 2000 show through-Delta survival of San Joaquin basin juvenile Chinook has been poor to abysmal (30% to 2%) (Hankin et al. 2010; Buchanan et al. 2013)

For the Sacramento Basin, survival for tagged fish released upstream and reaching to the Golden Gate Bridge have ranged from 3-16% for all runs in studies using either VEMCO or JSATS tags (2007-2011 for fall run, 2012 for spring and fall runs, and 2013 for winter run (Grossman et al. 2013).

On Sep 12, 2014, at 1:28 PM, Watts, John (Feinstein) <John_Watts@feinstein.senate.gov> wrote:

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Cc: 'Joan R Langhans'; 'Karen Hyun - NOAA Federal'; Albritton, Jason (EPW); Esquivel, Joaquin (Boxer); Yeung, Felix (Feinstein)
Subject: Can we do a call later today or over the weekend to discuss the salmon language?

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This call would not be primarily intended to focus on the “jeopardy issue,” but instead to focus on other parts of the salmon language, operating from the assumption that we can work out an agreement on a rigorous, quantitative standard for evaluating project operations under the BiOps.

Thanks for all your hard work on this legislative proposal.

Best,

John
202-████-████ direct

<title II redline 09-12-14.docx><title II clean 09-12-14.docx>

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From: Watts, John (Feinstein)
Sent: Saturday, September 13, 2014 9:00 AM
To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'
CC: Yeung, Felix (Feinstein)
Subject: Fw: Technical Comments on Operating Criteria
Attachments: Feinstein Technical Comments on Operating Criteria saturday edition.docx

The attached proposal does not work for multiple reasons. John Bezdek acknowledged to me that he knew it would not work for us.

I do think we have to respect the Administration's conclusion that a mini-jeopardy analysis would not work and would constitute a significant amendment to the ESA. We don't have to accept their substitute, however.

Besides the absence of any meaningful standard to track implementation of the biops, the attached proposed language raises a separate issue that we are going to need to address.

Will Stelle has advocated for using the adaptive management provisions of the BiOps to make any changes to the provisions of the BiOps. I believe we need to try this approach because it has two very significant and probably essential advantages:

- 1) It allows us to say that we are working with the BiOps rather than overriding them, which is politically essential; and
- 2) It helps protect us from enviro lawsuits that we are going outside the biops, requiring reconsultation.

There is a major problem, though: the adaptive management provisions of the biops could be interpreted to require broad reconsultation from any meaningful change to the BiOps. The attached agency proposal appears to further this perspective, by saying that adjustments to the biop are permitted only if "the effects of the adjustment fall within the range of effects previously analyzed in the underlying biological opinion and the incidental take authorizations contained therein."

I think the adaptive management provisions of the salmon biop can be read more flexibly to allow meaningful changes without broad reconsultation. We need to clarify this in our language.

David or anyone else, would it work to set forth or acknowledge in legislative language an adaptive management process for certain incremental changes that involved a very narrow reconsultation premised on the conclusion that the effects on the species were not ultimately significantly different from those identified in the original biop?

Or should we instead try to suggest or acknowledge legislatively that for certain meaningful incremental adjustments to the biop bounded in a manner we would describe, these adjustments would require no reconsultation at all?

Your thoughts would be appreciated.

From: Bezdek, John [mailto:john_bezdek@ios.doi.gov]
Sent: Saturday, September 13, 2014 10:49 AM Eastern Standard Time
To: Watts, John (Feinstein)
Cc: Bauserman, Trent <Trenton_D_Bauserman@ceq.eop.gov>; William Stelle <Will.Stelle@noaa.gov>
Subject: Technical Comments on Operating Criteria

John:

Pursuant to your request, attached below are technical comments on operating criteria. I am available over the weekend to discuss at your convenience.

Thanks and enjoy your Saturday morning.

j

John-

In our responses to your technical questions regarding the Water for the 21st Century legislation, you have described to us your goals of not changing the Endangered Species Act and not changing the existing 2008/2009 BiOps for CVP/SWP operations. However, adding the concept of a jeopardy analysis, or a “mini” jeopardy analysis on individual components of the overall action that was consulted on in the existing BiOps is inconsistent with both the ESA and the BiOps. We are concerned that there may be some misunderstanding of the application of Section 7 and the jeopardy analysis that was done for these BiOps. We hope [this-the following](#) explanation will help make more clear the way DOI and DOC view these concepts.

The Section 7 process allows for an action agency to insure, in consultation and with the assistance of the Secretary of the Interior or Commerce, that any action authorized, funded or carried out by that agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat. The action agency requests consultation with the Services after determining the proposed action may affect listed species or designated critical habitat. If the Service concurs in a determination that the agency may affect but is not likely to adversely affect the species the consultation ends. If, however, the action is likely to adversely affect listed species or designated critical habitat the agencies are required to undertake formal consultation.

Under formal consultation, the Service will undertake an analysis of the **whole** of the agency’s action, including the effects of that action, effects of the baseline and cumulative effects, to determine whether the agency’s action is likely to jeopardize listed species or destroy or adversely modify critical habitat. If a jeopardy or adverse modification determination is reached, the Service works with the action agency to develop a Reasonable and Prudent Alternative (RPA) that will avoid jeopardy or adverse modification that can be implemented in a manner consistent with the intended purpose of the action, is within the agency’s authority and is economically and technologically feasible. If the action agency accepts the RPA, the agency can implement its proposed action as modified by the RPA. The action agency is exempt from the take prohibition in Section 9 when implementing the action in compliance with the BiOp and incidental take statement. As a general matter, these are the steps that must be performed anytime a jeopardy analysis is undertaken as part of a [BiOp](#).

In the case of the 2008/2009 BiOps, the Services made determinations that the proposed action of operating the CVP and SWP as described by Reclamation, would likely jeopardize listed species and destroy or adversely modify critical habitat. Each BiOp sets out RPAs that address [the overall project what steps must be taken](#) to avoid jeopardy and adverse modification [in operating the projects](#). As long as Reclamation is implementing the project as described and as modified by the RPAs the agency is in full compliance with the ESA. Any language requiring the Services to make an additional determination that a component of the project description as modified by the RPAs is necessary to avoid jeopardy, as contemplated in the current language, is inconsistent with the ESA and its implementing regulations and inconsistent with BiOps as written. It is likely that modifying the project description and existing consultation by requiring a jeopardy analysis on a component part, [again](#)-as the existing language would require, -would

result in the need to reinitiate consultation on the 2008/2009 Biological Opinions and would result in litigation.

~~However~~At the same time, we would also emphasize that these large, complex, multi-year consultations typically do anticipate the need for adjustments in specific measures during the implementation of the RPA and authorize these adjustments in an orderly and documented manner, usually involving real time communications between the action agencies and FWS or NOAA. These adjustments typically involve substantive determinations of the effects of the adjustment on listed species and the relationship of those effects to the underlying authorization of incidental take. With this in mind, we offer the below technical comments to Title II of the draft bill, which avoids discussion of jeopardy but provides a meaningful alternative to operating the system in a manner that is consistent with the ESA and existing BOs. We think similar arrangements could be done for Title I or Title III.

~~Finally, while our recent technical discussions have focused on specific sections, I just want to reiterate our desire to be able to review the entire draft. We understand the need to be timely and we have worked hard to be responsive but the downside is that by working on sections in isolation on a very tight response time leaves our entire team without a firm as there has been a number of versions we have been evaluating, our reviews to date have been hasty and necessarily curtailed, and I am not sure any of us on the federal side have an understanding of the final language in any specific section or on the draft bill as a whole. We also continue to be concerned~~ want to underscore our very serious concern that ~~about how~~ implementation of a number of provisions in the draft, should ~~it~~ they be enacted, would affect our ability to complete BDCP in a timely manner. This concern exists even if funding is provided to cover the agencies' costs of compliance with the legislation, but the concern is greatly amplified to the extent that insufficient funding is provided for the agencies to carry out any new mandates in the legislation.

~~Finally, I would note that the Administration is being asked many questions about proposed draft legislation by other members of Congress and interested stakeholders. Even as we try and answer questions as candidly as possible, we would also request that a final or near-final version of proposed legislation be shared with other interested parties at the earliest possible time.~~

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Proposed Substantive Standards for Adjusting Operating Criteria

9.9.2014 7:30 pm

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

- (a) General Directive. The reasonable and prudent alternative described in the 2009 salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.
1. The Commissioner, in consultation with the Assistant Administrator shall examine and identify adjustments to the timing of pumping operations in RPA Action IV.2.3 pertaining to negative OMR flows up to the limit of -5000 cfs. The Assistant Administrator shall recommend to the Commissioner said adjustments in the exercise of the adaptive management provisions of the 2009 BiOp that can improve water supplies during the drought emergency and that are consistent with the requirements of applicable law and as further described in (b).
 2. The Assistant Administrator shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in RPA Action IV.2.1 pertaining to the inflow to exports requirements. The Assistant Administrator shall recommend to the Commissioner in the exercise of the adaptive management provisions of the 2009 BiOp such adjustments that can improve water supplies during the drought emergency and that are consistent with the requirements of applicable law and as further described in (b).
- (b) In making these recommendations, the Assistant Administrator shall evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner such adjustments that may improve water supplies during the critical drought if:
1. the net effect of the adjustments are at least equivalent to those of the underlying criteria, taking into account whatever minimization and/or mitigation may be implemented in conjunction with the adjustments; and
 2. the effects of the adjustment fall within the range of effects previously analyzed in the underlying biological opinion and the incidental take authorizations contained therein.
- (c) When examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria as described in (b), above, the Commissioner and the Assistant Administrator shall take into and account for the potential survival improvements that are likely to result from other measures which if implemented in conjunction with the adjustments would offset the adverse effects of the adjustment and with minimal adverse effects on water supply improvements.

From: Watts, John (Feinstein)

Sent: Sunday, September 14, 2014 6:57 AM

To: 'BBurman@mwdh2o.com'; 'bradley.cavallo@gmail.com'; 'RPatterson@mwdh2o.com'; 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'

CC: Yeung, Felix (Feinstein)

Subject: Question about the OMR provisions in the salmon biop

My understanding of the salmon biop is that the OMR provisions are at least to a degree mandatory, in that if there is a certain density of salmon near the pumps or level of take, OMR levels must be reduced (I believe to 3500 cfs and then 2500 cfs).

My question is whether there is any discretion in the implementation of these provisions, and if so, how the discretion works. Does the biop fully specify the density of salmon that requires reductions, and if so, say for how long OMR levels must be reduced? Or is there some discretion in how this is implemented? It would be helpful to know how this works, thanks.

From: Tom Birmingham
Sent: Sunday, September 14, 2014 3:00 PM
To: 'Watts, John (Feinstein)'; BBurman@mwdh2o.com; bradley.cavallo@gmail.com; RPatterson@mwdh2o.com; DBernhardt@BHFS.com
CC: 'Yeung, Felix (Feinstein)'
Subject: RE: Question about the OMR provisions in the salmon biop
Attachments: Action IV.2.3.docx

John,

I am attaching the description of the OMR action from the biological opinion. This summary omits the footnotes.

Tom

-----Original Message-----

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Sunday, September 14, 2014 6:57 AM
To: 'BBurman@mwdh2o.com'; 'bradley.cavallo@gmail.com'; 'RPatterson@mwdh2o.com'; 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'
Cc: Yeung, Felix (Feinstein)
Subject: Question about the OMR provisions in the salmon biop

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My question is whether there is any discretion in the implementation of these provisions, and if so, how the discretion works. Does the biop fully specify the density of salmon that requires reductions, and if so, say for how long OMR levels must be reduced? Or is there some discretion in how this is implemented? It would be helpful to know how this works, thanks.

Action IV.2.3 Old and Middle River Flow Management

Action: From January 1 through June 15, reduce exports, as necessary, to limit negative flows to -2,500 to -5,000 cfs in Old and Middle Rivers, depending on the presence of salmonids. The reverse flow will be managed within this range to reduce flows toward the pumps during periods of increased salmonid presence. The negative flow objective within the range shall be determined based on the following decision tree:

Date	Action Triggers	Action Responses
January 1 – June 15	January 1 – June 15	Exports are managed to a level that produces a 14-day running average of the tidally filtered flow of (minus) -5,000 cfs in Old and Middle River (OMR). A five-day running average flow shall be calculated from the daily tidally filtered values and be no more than 25 percent more negative than the targeted requirement flow for the 14-day average flow.
January 1 – June 15 First Stage Trigger (increasing level of concern)	Daily SWP/CVP older juvenile loss density (fish per taf) 1) is greater than incidental take limit divided by 2000 (2 percent WR JPE ÷ 2000), with a minimum value of 2.5 fish per taf, or 2) daily loss is greater than daily measured fish density divided by 12 taf (daily measured fish density ÷ 12 taf) or 3) CNFH CWT LFR or LSNFH CWT WR cumulative loss greater than 0.5%, or 4) daily loss of wild steelhead (intact adipose fin) is greater than the daily measured fish density divided by 12 taf (daily measured fish density ÷ 12 taf)	Reduce exports to achieve an average net OMR flow of (minus) -3,500 cfs for a minimum of 5 consecutive days. The five day running average OMR flows shall be no more than 25 percent more negative than the targeted flow level at any time during the 5-day running average period (<i>e.g.</i> , -4,375 cfs average over five days). Resumption of (minus) -5,000 cfs flows is allowed when average daily fish density is less than trigger density for 3 consecutive days following the 5 consecutive days of export reduction ³⁸ . Reductions are required when any one criterion is met.
		Reduce exports to achieve an average

<div> <div> January 1 - June 15 Second Stage Trigger (analogous to high concern Level) </div> <div> <div> <div>End of</div> <div>Continue action until June 15 or until</div> <div>Triggers</div> </div> <div> <div>If trigger for end of OMR regulation</div> </div> </div> </div>	<div> Daily SWP/CVP older juvenile loss density (fish per taf) is 1) greater than incidental take limit (2 percent of WR JPE) divided by 1000 (2 percent of WR JPE \div 1000), with a minimum value of 2.5 fish per taf, or 2) daily loss is greater than daily fish density divided by 8 taf (daily fish density \div 8 taf), or 3) CNFH CWT LFR or LSNFH CWT WR cumulative loss greater than 0.5%, or 4) daily loss of wild steelhead (intact adipose fin) is greater than the daily measured fish density divided by 8 taf (daily measured fish density \div 8 taf) </div> <div> <div>Continue action until June 15 or until average daily water temperature at Mossdale is greater than 72 degrees F (22 degrees C) for 7 consecutive days (1 week) whichever is earlier.</div> <div>If trigger for end of OMR regulation</div> </div>
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From: Bradley Cavallo

Sent: Sunday, September 14, 2014 6:05 PM

To: Watts, John (Feinstein)

CC: Brenda W Burman; Roger K Patterson; Bernhardt, David L.; Yeung, Felix (Feinstein); T Birmingham

Subject: Re: Question about the OMR provisions in the salmon biop

John,

As you can see (from the summary Tom sent), there are “loss” triggers for restricting OMRs to values more positive than -5,000. However, I have not had an opportunity to be involved in the application of these triggers to know what sort of discretion NMFS provides. Maybe someone else can comment on that?

While a trigger to enact further export restrictions may be conceptually sound, there are a lot of problems with these specific triggers. For example, NMFS has not shown how or why these density triggers are a reasonable threshold for excessive take of listed Chinook or steelhead. Statistical sensitivity analysis for “loss” (the basis for the density trigger) shows that the trigger values are so low and the estimation process so prone to error, that the triggers are not meaningful.

-Brad

On Sep 14, 2014, at 3:00 PM, Tom Birmingham <tbirmingham@westlandswater.org> wrote:

John,

I am attaching the description of the OMR action from the biological opinion. This summary omits the footnotes.

Tom

-----Original Message-----

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]

Sent: Sunday, September 14, 2014 6:57 AM

To: 'BBurman@mwdh2o.com'; 'bradley.cavallo@gmail.com'; 'RPatterson@mwdh2o.com'; 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'

Cc: Yeung, Felix (Feinstein)

Subject: Question about the OMR provisions in the salmon biop

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<Action IV.2.3.docx>

Bradley J. Cavallo

President, Senior Scientist

Cramer Fish Sciences
13300 New Airport Road, Suite 102
Auburn CA 95602

office 530.888.1443 ext. 11

mobile [REDACTED]

www.fishsciences.net

www.genidaqs.com

From: Watts, John (Feinstein)

Sent: Sunday, September 14, 2014 6:23 PM

To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; 'DBernhardt@BHFS.com'; 'BBurman@mwdh2o.com'; 'bradley.cavallo@gmail.com'

CC: Yeung, Felix (Feinstein)

Subject: Confidential salmon title language discussed on call today with Will Stelle

Attachments: Title II Section 202 redline 09-12-14.docx; Title II Section 203 redline 09-14-14 7pm.docx; Title II Section 204-207 redline 09-12-14.docx

Hi all. Will Stelle was available for a call this afternoon, and for brainstorming purposes I shared some draft language with him on the salmon title that worked off the adaptive management approach that he sent yesterday -- but added in action-forcing elements to ensure that the Secretary of Commerce would have to modify the OMR flow and i/e ratio provisions if alternative management measures or a combination of such measures would provide equivalent benefits to salmon.

I did not keep the jeopardy language from our original draft. It is clear from the email I forwarded yesterday that the agencies will not accept this language (nor will Senator Boxer).

I made clear on today's call that this was a brainstorming exercise, that I had not discussed it with you, and that the language might need further, potentially significant changes. I believe it is critical to move ahead to discuss one possible approach, because we have several significant issues to resolve, and we need to figure out how to resolve those issues and proceed soon to discussions with the House.

Please let me know what you think of the attached language. In order to show track changes in relation to multiple drafts, I cannot put everything in one document. I have attached the following;

- 1) Our suggested edits from Friday's draft to the section 202 language that Will sent a week ago Friday;
- 2) On the core provision, section 203, my rough suggested edits to what Will drafted and was sent us yesterday; and
- 3) Our suggested edits from Friday's draft to the sections 204 to 207 language that Will sent a week ago Friday.

Together, these add up to the salmon title, incorporating all the latest drafts.

Will made at least potentially helpful comment as we went over the draft. I indicated to him that we were concerned that the adaptive management provisions in the salmon biop were ambiguous and could be interpreted to mean that any significant incremental changes would require reconsultation if their effects had not been previously studied in the biop (which presented a possible Catch-22, because by definition new proposals would not have been studied in the Biop).

Will said he thought we could say that the adjustments to the biops could proceed without reconsultation if "the effects of the adjustment fall within the incidental take authorization." This simple standard, which Will said he will further review, seems like it should work to me. I would welcome any thoughts on it.

I mentioned to Will that for OMR flows in particular, we would want to provide a different standard for ensuring actions within the scope of the biological opinion minimized water losses while achieving the ESA's purposes. I told him we were working on such a standard for the smelt title, and would like to coordinate it with whatever discretion there is in OMR management under the salmon biop to the greatest extent possible. That's why I have been asking how much genuine discretion there is in OMR management under the salmon title.

I look forward to your thoughts.

John

From: Yeung, Felix (Feinstein)

Sent: Sunday, September 14, 2014 06:58 PM Eastern Standard Time

To: Watts, John (Feinstein)

Subject: Language After Call with Will Stelle

John,

Per our discussion just now. I have added a comment that the language Will suggested on the call is initial and will need some vetting.

Felix

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TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and haul barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed though the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to the Senate EPW and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, -and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner's recommendations regarding broadening the pilot program and adjusting the provisions of the salmon biological opinion pursuant to section 203 at the end of six seven _____ years shall formulate recommendations as to the appropriate future role of such a program in the conservation of listed salmonids in the San Joaquin watershed.

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(b) Enhanced Steelhead Study [Recommend ~~delete, per your recommendation further discussion in ripeness per 9.2.2014 discussuion.~~

(c) Experimental Variability.— [Recommend delete, per your recommendation.]

(b) ~~PIT tag~~Tagging ~~feasibility~~ studies -

(1) IN GENERAL.—The National Marine Fisheries Service, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed ~~a PIT tag feasibility study. StThe studies may also be conducted to -should be designed to-~~ aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

~~(e) Increased Monitoring to Inform Real-time Operations.—Starting in 2015, and on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, the Assistant Administrator shall—~~

~~(1) use the best survey methods at the most appropriate locations to detect migration and rearing of each species covered in the 2009 biological opinion; and~~

~~(2) use results from those survey methods to help calibrate real-time modeling tools, including the enhanced particle tracking model, and inform real-time operations consistent with the 2009 biological opinion or any successor opinion, including adaptive management provisions.~~

Proposed Substantive Standards for Adjusting Operating Criteria

9.914.2014 75:30 pm

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. The reasonable and prudent alternative described in the 2009 salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.

~~(a)~~(b) No later than December 31, 2015, and at least annually thereafter.

1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall examine and identify adjustments to the timing of pumping operations in RPA Action IV.2.3 pertaining to negative OMR flows up to the limit of - 5000 cfs]. ~~The Assistant Administrator shall recommend, and to the Commissioner shall approve, said adjustments in the exercise of the adaptive management provisions of the 2009 BiOp that can improve water supplies during the drought emergency and that are consistent with the requirements of applicable law and as further described in (b).~~

2. The Assistant Administrator₂ shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in RPA Action IV.2.1 pertaining to the inflow to exports requirements. ~~The Assistant Administrator shall recommend, and to the Commissioner shall approve, in the exercise of the adaptive management provisions of the 2009 BiOp such adjustments that can improve water supplies during the drought emergency and that are consistent with the requirements of applicable law and as further described in (b).~~

3. Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator make recommendations to the Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).

~~2-4.~~ The Assistant Administrator and the Commissioner shall implement those adjustments for which the conditions under paragraph (3) of this subsection are met.

~~(b)~~(c) In making these recommendations under subsection (b), the Assistant Administrator shall

evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner ~~such adjustments for which that may improve water supplies during the critical drought if:~~

1. ~~the net effect on listed species is if the adjustments are at worst~~ least equivalent to those of the underlying criteria, taking into account whatever ~~minimization and/or mitigation [is this a problematic or loaded word under the ESA?] may be implemented~~ actions or measures may be implemented in conjunction with the adjustments to mitigate its effects; and
2. the effects of the adjustment ~~[fall within the range of effects previously analyzed in the underlying biological opinion and the incidental take authorizations contained therein. I am working on language to revise this sentence].~~

Commented [fsy1]: Initial suggestion from Will Stelle; needs vetting.

(d) When examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria as described in (b) and (c), above, pursuant to subsections (e), (f), and (g), the Commissioner and the Assistant Administrator shall take into ~~and~~ account ~~for~~ the potential salmonid survival improvements that are likely to result from other measures which, if implemented in conjunction with the adjustments, would offset the adverse effects of the adjustment and with minimal adverse effects on water supply improvements, including measures implemented with the support of a substantial contribution from water districts that would benefit from the adjustments.

(e) Framework for examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Secretary shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available ~~and~~ for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—

- (1) with export restrictions specified within RPA Actions IV.2.1 that limit flow to -5000 cubic feet per second compared to limiting flow to -2500 cubic feet per second, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (2) with inflow to export restrictions specified within RPA Actions IV.2.3 as compared to inflow to export requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (3) by a trap and barge program based on the experience of other comparable systems and the study described in section _____, as that information becomes available;
- (4) through habitat improvements;
- (5) through predation control programs;
- (6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in

the Delta:

(7) by salvaging entrained fish at the entrance to Clifton Court Forebay; and

(8) by such other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

1) The Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

2) If the Secretary provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.

3) If at the time the Secretary conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

(1) If the Secretary determines that any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) have the same survival benefits as those estimated for limiting OMR flow to levels less negative than - 5000 cubic feet per second under RPA Action IV.2.1 or restricting the inflow to export ratio pursuant to RPA Action IV.2.3., the Secretary shall determine whether it is technically feasible and within Federal jurisdiction to implement such alternative management measures.

(2) For the purposes of this subsection—

(A) The alternative management measure or combination of alternative management measures identified in paragraph (1) shall be known as the “equivalent alternative measure.”

(B) The existing RPA or RPAs identified in paragraph (1) shall be known as the “equivalent existing measure.”

(3) If it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, the Secretary shall determine whether the adverse consequences of

doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

- (4) If the Secretary makes the finding in paragraph (3), the Secretary shall adjust the operating criteria in the salmon biological opinion pursuant to this subsection to implement the equivalent alternative measure and ~~either completely or substantially~~ replace the equivalent existing measure ~~in a manner~~ with alternatives that significantly increase water supplies.

Technical Assistance Only: Not Representative of Administration Policy or Positions

TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE DELTA AND ITS TRIBUTARIES, INCLUDING THE STANISLAUS RIVER

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River. The pilot program shall--

- (1) be scientifically based;
- (2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;
- (3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;
- (4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;
- (5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research and species enhancement permits needed to begin the pilot program; and
- (6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct-

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(1) IN GENERAL- By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION- The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding-

(1) ANNUAL FUNDING- The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

(2) ACCOUNTING- On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation-

(1) IN GENERAL- On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

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(2) REPORT- On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that--

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process-

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews – To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions- For the purposes of this section:

(1) COMMISSIONER- The term `Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS- The term `districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM- The term `program' means the pilot non-native predator removal program established under this section.

(i) Sunset- The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

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- (A) is one of the largest and most diverse estuaries in the United States,
- (B) is a natural treasure and a vital link in California's water system, and
- (C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and
- (D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento–San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

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(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section _____, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

(vii) Paintersville Bridge,

(viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(ix) Human-made submerged structures, and

(x) Salvage release sites.

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(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a

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mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall:

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The review shall:

(A) Be conducted by an independent science panel that includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries.

(B) Consider and give equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Be completed by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

(A) Any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which

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methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

From: Watts, John (Feinstein)

Sent: Monday, September 15, 2014 12:13 PM

To: 'tbirmingham@westlandswater.org'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); 'Burman,Brenda W'; Bernhardt, David L.

CC: Yeung, Felix (Feinstein)

Subject: Proposed edits to temporary operational flexibility language for first few storms of 2014-2015 water year (in drought relief title)

Attachments: temporary operationa flexibility 9-15-14.docx; agency draft temporary operational flexibility 9-6-14.docx

Attached are my proposed edits in redline to my earlier draft of the temporary operational flexibility language for the first few storms of the 2014-2015 water year (this is a section in the drought relief title). I have also attached the agencies' latest proposed language and comments on this section.

My edits attempt to respond to the agencies' concerns without gutting the section. In brief, the agencies had two concerns:

- 1) They opposed, as they have generally, requiring a jeopardy analysis focused on a time-limited component of the larger action of implementing the CVP and the SWP.

Response: I struck the jeopardy language from my draft. I don't believe it is essential.

- 2) The agencies contended that any deviation from the strictures of the biological opinion in implementing this section would 1) be inconsistent with the ESA; and 2) require broad reconsultation.

Response: We need some very limited temporary variance from the limits in the biops here, because otherwise the "payback" from the need to comply with the 5 and 14-day running averages will undo any advantage gained from a very temporary increase to -7500 cfs OMR. However, to keep the language consistent with the ESA and to avoid the need for reconsultation, I have:

- A) Directed the Commissioner to use the emergency consultation procedures of the ESA to adjust the operating criteria of the biops no more than necessary to allow greater water supplies solely for the 21 days of high outflow;
- B) Declared that no reconsultation is necessary as long as the agencies stay within the incidental take authorizations, which the section requires them to do; and
- C) Used Tom's language from the smelt title to allow the FWS discretion to limit pumping during the first flush of sediment out the Delta to avoid harming the smelt.

Do you think this language works? What concerns might the regulatory agencies raise about it? Do you have any suggested edits?

I look forward to your thoughts.

John

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- 1) During the 2014 water year, operations of the Central Valley Project and the State Water Project caused zero take of Delta smelt, and only [insert] take of salmonids, which is only [insert] percent of the incidental take level for the salmonids.
- 2) Despite the absence of any take of smelt and the very low levels of take of salmon, during and after storm events in the 2014 water year, the Central Valley Project and State Water Project never exceeded a combined pumping capacity of _____ cubic feet per second over a 14-day average.
- 3) As stated in Section ____, the latest scientific studies have not shown a substantiated connection between water pumping and salmon survival rates.
- 4) Hydrological conditions in dry years, such as the 2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- 5) The Secretaries should be allowed more flexibility to increase pumping levels without causing for fish and other endangered Species or weakening other environmental protections.
- 6) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the 2014-2015 water year, so that farms, businesses, and homes in the areas with the most severe drought risks will have an opportunity to bolster their meager supplies when water is available.

(b) Goal. To the maximum extent possible consistent with avoiding ~~jeopardy under the Endangered Species Act~~ substantial take of listed fish that could exceed the incidental take level in the biological opinions and other environmental protections under subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at -7500 cubic feet per second for 21 cumulative days of high outflow after October 1, 2014, as described in subsection (c).

(c) Days of high outflow. The days of high outflow described in subsection (b) shall constitute days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

(d) ~~Avoiding jeopardy~~ Compliance with incidental take authorization. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of high outflow if they determine it is necessary to do so in order to ensure that project operations over the remainder of the water year do not exceed the incidental take authorizations in the biological opinions.

~~(1) Demonstrate, including an explanation of the data examined and the connection between those data and the choice made, why such provisions are necessary in the short-~~

~~term to avoid jeopardy after considering other alternatives, if any, that may have a lesser water supply impact; and~~

(e) Other environmental protections.

- 1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year, are met;
- 2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;
- 3) This section shall not have any effect on the applicable requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of such applicable requirements may be relaxed during this time period to provide emergency water supply relief without causing jeopardy;
- 4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential actions to mitigate any impacts to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and
- 5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements of this section.

(f) Technical adjustments to target period. If, before the goal in subsection (b) is met, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative than -7500 cubic feet per second during days of high outflow as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) Emergency consultation; effect on running averages.

1) The Commissioner shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of high outflow, no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e), including as appropriate—

(A) adjustments to ensure that the actual flow rates during the periods of high outflow do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions; and

(B) [any other minor adjustments in operating criteria that we want to call out?]

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2) Following the conclusion of the 21 days of high outflow, the Commissioner shall not need to reinitiate consultation on the biological opinions if the effects of operations under this section remained within the incidental take authorizations.

~~For the purpose of carrying out subsection (b), the periods during which the combined operations of Central Valley Project and the State Water Project result in Old and Middle River flows more negative than 5000 cubic feet per second, and the actual flow rates during such periods, shall not be counted toward the 5 day and 14 day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.~~

(i) Duration. This section shall expire on September 30, 2015.

Sec. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(b) Goal. To the maximum extent possible consistent with avoiding jeopardy under the Endangered Species Act pursuant to subsection (d) and in accordance with other state and federal laws (including regulations and the 2008 Fish and Wildlife Service Biological Opinion and the 2009 NOAA Fisheries Biological Opinion) as described in subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at -7500 cubic feet per second for 21 cumulative days of high outflow after October 1, 2014, as described in subsection (c).

(d) Avoiding jeopardy. In carrying out this section, to prevent the need to reinitiate consultation, the Secretaries will continue to implement the requirements under the biological opinions during any period of high outflow if they:

(1) Demonstrate, including an explanations of the data examined and the connection between those data and the choice made, all possible deference for maintaining the maximum exports while complying with the biological opinions; and

(2) Give great weight to allowing maximum water exports while complying with the biological opinions realizing the incidental take levels in the applicable biological opinions are maximum expected incidental take when the proposed action is operated in compliance with the Endangered Species Act and other state and federal laws.

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Commented [WU1]: These edits are meant to provide minimum possible changes to the language while ensuring reinitiation of the biological opinions would not be triggered. Reclamation and the Services have to act within the parameters set by the 2008 and 2009 biological opinions.

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Commented [WU2]: I fully agree with Will Stelle's comments that avoiding jeopardy is not the right standard as jeopardy is determined, and corrected through Reasonable and Prudent Alternatives, by analyzing the proposed actions as a whole and not by assessing specific actions – such as OMR flows on a certain date – either in the proposed action or in the reasonable and prudent alternatives imposed to remove jeopardy to species. I have, however, left the jeopardy language in the spirit of trying to find compromise.

Commented [WU3]: The original language puts Reclamation and the Services in the position of potentially violating the measures in the opinions required to prevent jeopardizing the species. Reinitiation of consultation would likely be a lengthy process as it would be the operations as a whole that would need to be assessed and the result of reinitiation could result in more restrictive requirements than currently exist.

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From: Watts, John (Feinstein)
Sent: Monday, September 15, 2014 2:27 PM
To: 'tbirmingham@westlandswater.org'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); 'Burman,Brenda W'; Bernhardt, David L.; Bradley Cavallo
Subject: Confidential change to salmon language attached
Attachments: Title II Section 203 redline 09-15-14.docx

Hi all. I have been trying to figure out how to work into the salmon title our idea of tracking BiOP implementation through the incidental take level. It is easier to do this under the smelt biop, where there is a considerable range of OMR flows permitted that is fully consistent with the biop. We can say operate at the high end of the range unless the Secretary shows that it is necessary to reduce flows in order to avoid exceeding the ITL.

In the case of the salmon biop, this is more difficult. Because the salmon biop is much more prescriptive, we cannot prohibit reductions in OMR flows below the -5000 cfs level without suspending the prescriptive criteria that require reductions in those flows under those circumstances. As a result, I have proposed adding a new subsection (h) to the end of the attached section 203 of the salmon title that requires NOAA Fisheries as part of its annual review of the operating criteria of the biop to:

consider requiring that before some or all of the provisions of RPA Actions IV.2.1. or IV.2.3 are imposed in any specific instance, the Assistant Administrator show that the implementation of these RPA provisions in that specific instance is necessary to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year.

I also have attached additional language in subsection (h) encouraging revising the operational criteria to establish coordinated operation of OMR flows under the salmon and smelt biops, perhaps using the tracking of incidental take as a means to do so.

Finally, I have revised subsection (g) of the attached language to make more clear that the water supply benefits resulting from the revisions to operational criteria under section 203 must "increase water supplies to the greatest extent possible while maintaining a net combined effect of equivalent fishery survival benefits."

Please let me know what you think of these edits and the revised section 203.

Proposed Substantive Standards for Adjusting Operating Criteria

9.914.2014 75:30 pm

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General Directive. The reasonable and prudent alternative described in the 2009 salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.

~~(a)~~(b) No later than December 31, 2015, and at least annually thereafter.

1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall examine and identify adjustments to the timing of pumping operations in RPA Action IV.2.3 pertaining to negative OMR flows up to the limit of - 5000 cfs]. ~~The Assistant Administrator shall recommend, and to the Commissioner shall approve, said adjustments in the exercise of the adaptive management provisions of the 2009 BiOp that can improve water supplies during the drought emergency and that are consistent with the requirements of applicable law and as further described in (b).~~

2. The Assistant Administrator₂ shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in RPA Action IV.2.1 pertaining to the inflow to exports requirements. ~~The Assistant Administrator shall recommend, and to the Commissioner shall approve, in the exercise of the adaptive management provisions of the 2009 BiOp such adjustments that can improve water supplies during the drought emergency and that are consistent with the requirements of applicable law and as further described in (b).~~

3. ~~Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator make recommendations to the Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).~~

~~2-4.~~ The Assistant Administrator and the Commissioner shall implement those adjustments for which the conditions under paragraph (3) of this subsection are met.

~~(b)~~(c) In making these recommendations under subsection (b), the Assistant Administrator shall

evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner ~~such adjustments for which that may improve water supplies during the critical drought if:~~

1. ~~the net effect on listed species is if the adjustments are at worst~~ at least equivalent to those of the underlying criteria, taking into account whatever ~~minimization and/or mitigation [is this a problematic or loaded word under the ESA?] may be implemented~~ actions or measures may be implemented in conjunction with the adjustments to mitigate its effects; and
2. the effects of the adjustment ~~[fall within the range of effects previously analyzed in the underlying biological opinion and the incidental take authorizations contained therein. I am working on language to revise this sentence].~~

Commented [fsy1]: Initial suggestion from Will Stelle; needs vetting.

(d) When examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria as described in (b) and (c), above, pursuant to subsections (e), (f), and (g), the Commissioner and the Assistant Administrator shall take into ~~and~~ account ~~for~~ the potential salmonid survival improvements that are likely to result from other measures which, if implemented in conjunction with the adjustments, would offset the adverse effects of the adjustment and with minimal adverse effects on water supply improvements, including measures implemented with the support of a substantial contribution from water districts that would benefit from the adjustments.

(e) Framework for examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Secretary shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available ~~and~~ for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—

- (1) with export restrictions specified within RPA Actions IV.2.1 that limit flow to -5000 cubic feet per second compared to limiting flow to -2500 cubic feet per second, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (2) with inflow to export restrictions specified within RPA Actions IV.2.3 as compared to inflow to export requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (3) by a trap and barge program based on the experience of other comparable systems and the study described in section _____, as that information becomes available;
- (4) through habitat improvements;
- (5) through predation control programs;
- (6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in

the Delta:

(7) by salvaging entrained fish at the entrance to Clifton Court Forebay; and

(8) by such other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

1) The Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

2) If the Secretary provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.

3) If at the time the Secretary conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

(1) If the Secretary determines that any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) have the same survival benefits as those estimated for limiting OMR flow to levels less negative than - 5000 cubic feet per second under RPA Action IV.2.1 or restricting the inflow to export ratio pursuant to RPA Action IV.2.3., the Secretary shall determine whether it is technically feasible and within Federal jurisdiction to implement such alternative management measures.

(2) For the purposes of this subsection—

(A) The alternative management measure or combination of alternative management measures identified in paragraph (1) shall be known as the “equivalent alternative measure.”

(B) The existing RPA or RPAs identified in paragraph (1) shall be known as the “equivalent existing measure.”

(3) If it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, the Secretary shall determine whether the adverse consequences of

doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

(4) If the Secretary makes the finding in paragraph (3), the Secretary shall adjust the operating criteria in the salmon biological opinion pursuant to this subsection to implement the equivalent alternative measure in place of the equivalent existing measure in order to increase water supplies to the greatest extent possible while maintaining a net combined effect of equivalent fishery survival benefits.

(h) Tracking incidental take levels and coordinated operation with smelt biological opinion.

(1) Among the adjustments to the operational criteria considered through the adaptive management process under this section, the Assistant Administrator and the Commissioner shall consider requiring that before some or all of the provisions of RPA Actions IV.2.1. or IV.2.3 are imposed in any specific instance, the Assistant Administrator show that the implementation of these RPA provisions in that specific instance is necessary to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year.

(2) Through tracking incidental take levels or some other mechanism, the Assistant Administrator and the Commissioner shall consider establishing operational criteria to coordinate management of OMR flows under the smelt and salmon biological opinions, in order to take advantage of opportunities to provide additional water supplies from the coordinated implementation of the biological opinions.

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From: Jason Peltier

Sent: Monday, September 15, 2014 2:47 PM

To: T Birmingham (tbirmingham@westlandswater.org); Dan Nelson <Dan.Nelson@sldmwa.org>; Ara.azhderian@sldmwa.org; Dennis Cardoza; Joe Findaro; David Bernhardt

Subject: No comment except, good bye.

Last Thursday night, retiring Calif. Dem. Rep. George Miller held a staff reunion party for any and all staff who have ever worked for his office or his committee staff. More than 100 people attended the event in Cannon Caucus Room.

SPOTTED: John Lawrence, Daniel Weiss, Alan Stone, Ann Rosewater, Mark Zuckerman, Jody Calemine, Megan O'Reilly, Sylvia Arthur, Jeff Petrich, Jean Flemma, Deborah Lanzone, Marie Howard, and Barb Johnson. **Pic of the party:**

<http://bit.ly/1sUiJw1> Highlight reel of Miller's "greatest hits" on House floor: <http://bit.ly/1qCniLN>



From: Burman,Brenda W

Sent: Wednesday, September 17, 2014 12:38 PM

To: John Watts; Patterson,Roger K; Tom Birmingham; David Bernhardt; Fullerton,David K; Sheehan,Rebecca D

Subject: Fwd: smelt title draft 9-16-14 (2)-MWD edits

Attachments: smelt title draft 9-16-14 (2)-MWD edits.docx; ATT00001.htm

Smelt language

This communication, together with any attachments or embedded links, is for the sole use of the intended recipient(s) and may contain information that is confidential or legally protected. If you are not the intended recipient, you are hereby notified that any review, disclosure, copying, dissemination, distribution or use of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately by return e-mail message and delete the original and all copies of the communication, along with any attachments or embedded links, from your system.

Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE.

SEC. 101. FINDINGS.

[I would prefer to discuss appropriate findings at a later date]

SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

~~(a) In General. Consistent with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (including regulations) and subsection (b), the Director of the Fish and Wildlife Service shall work in a collaborative fashion to better understand methods of reducing entrainment risk to delta smelt and better understand delta smelt population effects as a result of entrainment. To accomplish these goals, the Service will~~

~~(1) use the best scientific and commercial data;~~

~~(2) use:~~

~~(A) new and updated statistical models, especially the delta smelt life history model;~~

~~(B) updated scientific data, especially data gained from surveys specifically designed to study delta smelt distribution and abundance and the early warning surveys; and~~

~~(C) studies designed specifically to improve understanding of delta smelt entrainment dynamics; and~~

~~(3) endeavor to understand loss of delta smelt due to entrainment and the population level impact of entrainment while allowing operations according to the reasonable and prudent alternatives described in the smelt biological opinion.~~

~~(b)(a)~~

Modified Incidental Take ~~Limit [Level]~~. — No later than October 1, 2015, the ~~Service shall~~ Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data available and best science and best science, including new and improved modeling, to complete a review and ~~modification~~, if warranted, a modification of the incidental take level in the 2008 delta smelt biological opinion that —

~~(1) takes into account—~~

~~(A) salvage information available over at least 18 years;~~

~~(B) updated or more recently developed statistical models;~~

~~(C) updated scientific and commercial data; and~~

~~(D) the most recent information regarding the environmental factors driving delta smelt salvage. delta smelt entrainment dynamics; and~~

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Style Definition: Footer: Font: Don't adjust space between Latin and Asian text, Don't adjust space between Asian text and numbers

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~~(2) represents actual entrainment and the population level impact of entrainment while allowing operations in accordance with the smelt biological opinion.~~

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SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

- (a) ~~(a)~~ In General.—The reasonable and prudent ~~alternatives~~ ~~alternatives~~ described in the 2008 ~~delta smelt biological opinion, as amended, and any successor opinions~~ shall be implemented consistent with ~~current~~ the best scientific and commercial data available, and implementation shall be adjusted accordingly as new scientific and commercial data is developed.
- (b) The Commissioner shall operate consistent with the incidental take statement in the 2008 ~~delta smelt biological opinion, as amended, and any successor opinions, and informal or formal consultation shall only be reinitiated if: 1.) the amount or extent of taking specified in the incidental take statement is exceeded; 2.) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; 3.) if CVP operations are subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the 2008 delta smelt biological opinion, as amended, and any successor opinions, or a new species is listed or critical habitat designated that may be affected by the identified action.~~

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(c) ~~(b)~~ Increased Monitoring to Inform Real-time Operations.—To better inform the Commissioner's operation of the CVP, ~~contingent upon funding, additional surveys shall be conducted. On an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests, in implementing this section the Commissioner~~ Director shall: ~~conduct early warning surveys that~~

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Commented [WU1]: We can't do it unless it is funded.

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(1) use the ~~most biologically appropriate best~~ survey methods ~~for the detection of delta smelt at the most appropriate locations to determine the extent that detect adult delta smelt are distributed in relation to certain levels of turbidity, or other environmental factors that may influence salvage rate; that might be associated with increased turbidity; and~~

(2) use results from ~~the most biologically appropriate survey methods for the detection of delta smelt to determine how the CVP may be operated more efficiently to minimize salvage while maximizing rates of water export. these survey methods to help determine how data from increased surveys can improve risk assessment for delta smelt entrainment that may result from maximum rates of exports without significantly increasing significant depletion of the species~~

~~risk of causing jeopardy.~~

(A) ~~conduct daily monitoring using the most biologically appropriate survey methods in Old River in the vicinity of Station 902, to determine the extent that adult Delta smelt are be moving with turbidity toward the export pumps; and~~

(B) ~~use results from the monitoring surveys at Station 902 these early warning trawls to help determine how increased trawling can inform in daily real-time CVP operations to minimize salvage while maximizing rates of water export. what levels of exports can be pumped without risk of a large smelt salvage event that would cause jeopardy.~~

Commented [WU2]: The jeopardy language continues to be problematic. It is project operations that cause jeopardy or not. Perhaps putting it in the context of depleting the species might suffice.

Commented [WU3]: FWS believes Station 902 is too close to the pumps to be an effective early warning station. While we could include Station 902 in best survey methods it would just increase the cost and workload without, in our opinion, providing results we can use.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Commissioner determines it is appropriate, the Commissioner shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the Delta, is providing sufficient data to inform CVP operations to minimize salvage while maximizing rates of water export; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.—No later than 2016, and for each successive period, and for as long as needed, contingent upon funding, the Secretary Director of the United States Fish and Wildlife Service, in collaboration with other Delta science partners, shall implement surveys new targeted sampling and monitoring, specifically designed to understand delta smelt abundance and distribution, and the types of habitat occupied by delta smelt during all life stages.

Commented [WU4]: Can't do it unless funded

(2) SAMPLING.—T~~he~~ Delta Smelt Distribution Study shall sampling—

(A) ~~shall~~ include recording water quality and tidal data;

(B) ~~will~~ be designed to ~~best~~ understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) should consider areas not routinely sampled by existing monitoring programs, including wetland channels, near-shore water, depths below 35 feet, and shallow-water; and

(D) will use the most biologically appropriate best survey methods, including sampling gear suited to the type of sampling or monitoring.

(e) Delta Smelt Entrainment Study – No later than 2016, the Secretary, in collaboration with Delta science partners, shall implement new targeted sampling and monitoring designed to understand the relationship between salvage and entrainment. Entrainment threshold.—No later than November 1, 2016, the Director shall establish a specific threshold or thresholds which

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~~(f)~~ Scientifically Supported Implementation of Old and Middle River Flow Requirements.—

(1) consider the relevant provisions of the biological opinion or any successor opinion;

(2) effective December 1, 2014, document any significant facts about real-time conditions relevant to the determinations of the Commissioner Secretary of rates at which reverse OMR flow will be managed, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Bacon Island Station 902 pursuant to this section indicates that a significant increase in the salvage of Delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt;

(3) effective December 1, 2016, except as provided in paragraph (4), document a showing, including an explanation of the data examined and the connection between the data and the choice made, that management of OMR flow at levels less negative than -5000 cubic feet per second in the short-term is necessary because

~~(A) otherwise export pumping rates would either~~
~~exceed the entrainment threshold or thresholds developed pursuant to subsection (e); and~~

(4) during the first flush of sediment out the Delta in a water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at CVP Central Valley Project and State Water Project pumping plants.

(g) Emergency action to provide drought relief. No later than December 1, 2014, the Commissioner and the Director shall execute a Memorandum of Understanding to ensure that the smelt biological opinion is implemented in a manner that minimizes water supply losses while complying with applicable laws (including regulations) during the period that the emergency drought declaration is in effect.

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~~CONFIDENTIAL~~

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From: Tom Birmingham
Sent: Thursday, September 18, 2014 9:26 AM
To: 'Watts, John (Feinstein)'
CC: 'Bernhardt, David L.'
Subject: Lanugage
Attachments: Alternative OMR Management.docx

John,

Attached is language I developed based on our discussion with John Bezdek. I look forward to talking with you at 3:00 p.m. EDT.

Tom

(c) Implementation of Old and Middle River Flow Requirements.—

(1) IN GENERAL.—Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the smelt biological opinion.

(2) REQUIREMENTS.—In connection with implementation of the smelt biological opinion, or any successor biological opinion, the Secretary shall—

(A) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project; and,

(B) document the basis, including an explanation of the data examined and the connection between those data and the choice made, for any determination to manage reverse flow at rates less negative than -5000 cfs in light of the potential that operating at -5000 cfs will result in exceeding the incidental take level, the potential effects of entrainment on subsequent smelt abundance, the distribution of Delta smelt, the water temperature, and other factors relevant to the determination.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 11:22 AM
To: 'Tom Birmingham'
CC: 'Bernhardt, David L.'
Subject: RE: Language
Attachments: Alternative OMR Management.docx

Importance: High

I think the attached is stronger. Do you mind if I send this to John?

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]
Sent: Thursday, September 18, 2014 12:26 PM
To: Watts, John (Feinstein)
Cc: 'Bernhardt, David L.'
Subject: Lanugage

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(A) consider the relevant provisions of the biological opinion or any successor opinion;

(B) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project; and,

(C) show that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt; document the basis, including an explanation of the data examined and the connection between those data and the choice made, for any determination to manage reverse flow at rates less negative than -5000 cfs; after considering:

1) whether continued project operations over the remainder of the water year would exceed the incidental take level;

2) in light of the potential that operating at -5000 cfs will result in exceeding the incidental take level, the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the Delta smelt population throughout the Delta,

3) the water temperature,

4) and other factors relevant to the determination; and-

5) whether any alternative measures could have a lesser water supply impact.

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From: Tom Birmingham
Sent: Thursday, September 18, 2014 11:30 AM
To: 'Watts, John (Feinstein)'
CC: 'Bernhardt, David L.'
Subject: RE: Language

No, please send the language.

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Thursday, September 18, 2014 11:22 AM
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Cc: 'Bernhardt, David L.'
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Importance: High

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Tom

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 11:36 AM
To: 'Tom Birmingham'
CC: 'Bernhardt, David L.'
Subject: RE: Language
Attachments: Alternative OMR Management clean.docx; Alternative OMR Management redline.docx

I have a couple more suggested edits. I would

- 1) Strike the language about not affecting OMR flows above -5000 cfs, because it is not necessary, and it will depress the House more than it will buy us any credit with the enviros; and
- 2) Include the language we had in previous drafts about documenting the results of monitoring whether there were any significant smelt populations near the pumps.

I have attached both redline and clean versions. Tom, I'm not sure I understood your email and will call you in a few minutes.

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]
Sent: Thursday, September 18, 2014 2:30 PM
To: Watts, John (Feinstein)
Cc: 'Bernhardt, David L.'
Subject: RE: Language

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(c) Implementation of Old and Middle River Flow Requirements.—In connection with implementation of the smelt biological opinion, or any successor biological opinion, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project; and,

(3) document any significant facts about real-time conditions relevant to the rates at which reverse OMR flow will be managed, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Station 902 pursuant to this section indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(4) show that any determination to manage OMR reverse flow at rates less negative than - 5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:

(A) whether continued project operations over the remainder of the water year would exceed the incidental take level;

(B) the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the population throughout the Delta,

(C) the water temperature,

(D) other factors relevant to the determination; and

(E) whether any alternative measures could have a lesser water supply impact.

(c) Implementation of Old and Middle River Flow Requirements.—

~~(1) IN GENERAL.— Nothing in this subsection affects the limitation of OMR flow that is greater (more negative) than -5000 cubic feet per second, as described in the smelt biological opinion.~~

~~(2) REQUIREMENTS.—~~In connection with implementation of the smelt biological opinion, or any successor biological opinion, the Secretary shall—

~~(1A) consider the relevant provisions of the biological opinion or any successor biological opinion;~~

~~(2) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project; and,~~

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From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 11:40 AM
To: 'Tom Birmingham'
CC: 'Bernhardt, David L.'
Subject: RE: Language

Great, thanks. Since John pushed back the call to 3:15, I am going to spend a few more minutes reading it over to see if anything is missing before I hit the send key.

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]
Sent: Thursday, September 18, 2014 2:38 PM
To: Watts, John (Feinstein)
Cc: 'Bernhardt, David L.'
Subject: RE: Language

John,
I encourage you to send your version to John Bezdek.
Tom

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Sent: Thursday, September 18, 2014 11:36 AM
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Subject: RE: Language

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Cc: 'Bernhardt, David L.'
Subject: RE: Language

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To: 'Tom Birmingham'
Cc: 'Bernhardt, David L.'
Subject: RE: Language
Importance: High

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Cc: 'Bernhardt, David L.'
Subject: Lanugage

John,

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Tom

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 12:00 PM
To: Bernhardt, David L.; 'Tom Birmingham'
Subject: FW: Draft language for discussion on 3:15 call attached
Attachments: Alternative OMR Management clean.docx

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 2:59 PM
To: 'John Bezdek'
Subject: Draft language for discussion on 3:15 call attached

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]
Sent: Thursday, September 18, 2014 2:28 PM
To: Tom Birmingham
Cc: Watts, John (Feinstein)
Subject: Re: Conference Call Number

Can we do 3:15?

On Sep 17, 2014, at 10:29 PM, Tom Birmingham <tbirmingham@westlandswater.org> wrote:

Thank you.

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]
Sent: Wednesday, September 17, 2014 6:55 PM
To: Watts, John (Feinstein)
Cc: Tom Birmingham
Subject: Re: Conference Call Number

Same here.

On Sep 17, 2014, at 7:08 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

Fine with me to invite David Bernhardt

From: Tom Birmingham [<mailto:tbirmingham@westlandswater.org>]
Sent: Wednesday, September 17, 2014 6:53 PM
To: Watts, John (Feinstein); 'Bezdek, John'
Subject: Conference Call Number

Gentlemen,

Please call (800) [REDACTED] - [REDACTED] pass code [REDACTED] at 8:00 a.m. Pacific Time (11:00 a.m. Eastern Time).

Tom

P.S.: May I invite David Bernhardt to join us?

(c) Implementation of Old and Middle River Flow Requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Station 902 pursuant to this section indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(4) show that any determination to manage OMR reverse flow at rates less negative than - 5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:

(A) whether continued project operations over the remainder of the water year would exceed the incidental take level;

(B) the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the population throughout the Delta,

(C) the water temperature,

(D) other factors relevant to the determination; and

(E) whether any alternative measures could have a lesser water supply impact.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 12:15 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: FW: Use this one instead: draft language for discussion on 3:15 call attached
Attachments: Alternative OMR Management clean.docx

I added a new paragraph (4)(A) referencing the results of the monitoring.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 3:14 PM
To: John Bezdek (John_Bezdek@ios.doi.gov)
Subject: Use this one instead: draft language for discussion on 3:15 call attached

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 2:59 PM
To: 'John Bezdek'
Subject: Draft language for discussion on 3:15 call attached

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Sent: Thursday, September 18, 2014 2:28 PM
To: Tom Birmingham
Cc: Watts, John (Feinstein)
Subject: Re: Conference Call Number

Can we do 3:15?

On Sep 17, 2014, at 10:29 PM, Tom Birmingham <tbirmingham@westlandswater.org> wrote:

Thank you.

From: John Bezdek [mailto:john_bezdek@ios.doi.gov]
Sent: Wednesday, September 17, 2014 6:55 PM
To: Watts, John (Feinstein)
Cc: Tom Birmingham
Subject: Re: Conference Call Number

Same here.

On Sep 17, 2014, at 7:08 PM, "Watts, John (Feinstein)" <John_Watts@feinstein.senate.gov> wrote:

Fine with me to invite David Bernhardt

From: Tom Birmingham [<mailto:tbirmingham@westlandswater.org>]
Sent: Wednesday, September 17, 2014 6:53 PM
To: Watts, John (Feinstein); 'Bezdek, John'
Subject: Conference Call Number

Gentlemen,

Please call (800) [REDACTED] - [REDACTED] pass code [REDACTED] at 8:00 a.m. Pacific Time (11:00 a.m. Eastern Time).

Tom

P.S.: May I invite David Bernhardt to join us?

(c) Implementation of Old and Middle River Flow Requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Station 902 pursuant to this section indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause substantially increased take of delta smelt; and

(4) show that any determination to manage OMR reverse flow at rates less negative than - 5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:

(A) the findings in paragraph (3);

(B) whether continued project operations over the remainder of the water year would exceed the incidental take level;

(C) the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the population throughout the Delta,

(D) the water temperature,

(E) other factors relevant to the determination; and

(F) whether any alternative measures could have a lesser water supply impact.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 12:21 PM
To: Bernhardt, David L.; 'Tom Birmingham'
Subject: FW: Confidential: language for discussion on 3 pm call

This is the language we are discussing.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 1:18 PM
To: John Bezdek (John_Bezdek@ios.doi.gov)
Subject: Confidential: language for discussion on 3 pm call

The language would be inserted at the end of section 103 in the smelt title. We are also working on a separate language to provide objective and transparent criteria for decisionmaking in a separate part of section 103.

(g) Emergency action to provide drought relief. No later than December 1, 2014, the Commissioner and the Director will execute a Memorandum of Understanding to ensure that the smelt biological opinion is implemented in a manner that minimizes water supply losses while complying with applicable laws (including regulations). The execution and implementation of such Memorandum of Understanding will satisfy the terms and conditions of Reclamation's obligations under the 2008 delta smelt biological opinion, as amended, or any successor biological opinion.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 12:55 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: FW:
Attachments: temporary operational flexibility 9-15-14.docx

From: Watts, John (Feinstein)
Sent: Wednesday, September 17, 2014 6:39 PM
To: John Bezdek (John_Bezdek@ios.doi.gov)
Subject:

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- 1) During the 2014 water year, operations of the Central Valley Project and the State Water Project, the incidental take of adult Delta smelt was zero; of juvenile Delta smelt, 78 (7.7% of the incidental take limit); of winter run chinook, 339 (1.4% of the incidental take limit); of spring run chinook, zero; and of steelhead, 261 (8.7% of the incidental take limit).
- 2) The Central Valley Project and State Water Project exceeded a combined pumping capacity of -5,000 cubic feet per second over a 14-day average for brief periods after three storm events in February and March 2014, but did not cause substantially increased take of smelt or salmon.
- 3) As stated in Title II of this Act, the latest scientific studies have not shown a substantiated connection between water pumping and salmon survival rates.
- 4) Hydrological conditions in dry years, such as the 2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- 5) The Secretaries should be allowed more flexibility to increase pumping levels without causing for fish and other endangered Species or weakening other environmental protections.
- 6) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the 2014-2015 water year, so that farms, businesses, and homes in the areas with the most severe drought risks will have an opportunity to bolster their meager supplies when water is available.

(b) Goal. To the maximum extent possible consistent with avoiding ~~jeopardy under the Endangered Species Act~~ substantial take of listed fish likely to result in exceeding the incidental take level in the biological opinions and other environmental protections under subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at -7500 cubic feet per second for 21 cumulative days of high outflow after October 1, 2014, as described in subsection (c).

(c) Days of high outflow. The days of high outflow described in subsection (b) shall constitute days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

(d) ~~Avoiding jeopardy~~ Compliance with incidental take authorization. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of high outflow if they determine that otherwise project operations over the remainder of the water year would exceed the incidental take authorizations in the biological opinions.

~~(1) Demonstrate, including an explanation of the data examined and the connection between those data and the choice made, why such provisions are necessary in the short-term to avoid jeopardy after considering other alternatives, if any, that may have a lesser water supply impact; and~~

(e) Other environmental protections.

- 1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year, are met;
- 2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;
- 3) This section shall not have any effect on the applicable requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of such applicable requirements may be relaxed during this time period to provide emergency water supply relief without causing jeopardy;
- 4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential actions to mitigate any impacts to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and
- 5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements of this section.

(f) Technical adjustments to target period. If, before the goal in subsection (b) is met, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative than -7500 cubic feet per second during days of high outflow as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) Emergency consultation: ~~e~~Effect on running averages.

1) The Commissioner, in informal consultation with the Director and the Assistant Administrator, shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of high outflow—

A) no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e); and

B) including, as appropriate, adjustments to ensure that the actual flow rates during the periods of high outflow do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.

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2) Following the conclusion of the 21 days of high outflow, the Commissioner shall not need to reinitiate consultation on the biological opinions if the effects of operations under this section remained within the incidental take authorizations.

~~For the purpose of carrying out subsection (b), the periods during which the combined operations of Central Valley Project and the State Water Project result in Old and Middle River flows more negative than -5000 cubic feet per second, and the actual flow rates during such periods, shall not be counted toward the 5 day and 14 day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.~~

(i) Duration. This section shall expire on September 30, 2015.

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 1:50 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: Current smelt language to show to Roger
Attachments: Alternative OMR Management 9-18-14.docx

(e) Implementation of Old and Middle River Flow Requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Station 902 pursuant to this section indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause significantly increased take of delta smelt; and

(4) show that any determination to manage OMR reverse flow at rates less negative than - 5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:

(A) the findings in paragraph (3);

(B) whether continued project operations over the remainder of the water year would exceed the incidental take level;

(C) the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the population throughout the Delta,

(D) the water temperature,

(E) other factors relevant to the determination; and

(F) whether any alternative measures could have a lesser water supply impact.

(f) Emergency action to provide drought relief. No later than December 1, 2014, the Commissioner and the Director shall execute a Memorandum of Understanding to ensure that the smelt biological opinion is implemented in a manner that minimizes water supply losses while complying with applicable laws (including regulations) during the period that the emergency drought declaration is in effect. [additional language to be included to protect existing incidental take authority and clarify that the MOU will not require reinitiating consultation]

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 2:38 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: FW: Confidential: current draft of smelt title
Attachments: smelt title draft clean 9-18-14.docx

fyi

From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 5:38 PM
To: John Bezdek (John_Bezdek@ios.doi.gov)
Subject: Confidential: current draft of smelt title

John, Attached is the current draft of the smelt title. The redline was getting impossible to read, so I present it as clean text. We still need additional language from Peg in subsection (f), where I have bracketed a note about what was missing.

Please feel free to share with Ren. Please let him know I included the “contingent upon funding” language that he requested. Metropolitan suggested some edits to the language, particularly on the monitoring requirements, which are not intended to substantively change the requirements. Ren should be aware that edits were made, however.

The major change is the revision to subsection (e), and the new subsection (f), which Peg is reworking.

Thanks to you and Peg for today’s call, which I think was productive.

Best,

John

Title I. ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE.

SEC. 101. FINDINGS.

[I would prefer to discuss appropriate findings at a later date]

SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA SMELT TO REFLECT NEW SCIENCE.

No later than October 1, 2015, the Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data available and best science to complete a review and, if warranted, a modification of the incidental take level in the 2008 delta smelt biological opinion that takes into account—

- (a) salvage information available over at least 18 years;
- (b) updated or more recently developed statistical models;
- (c) updated scientific and commercial data; and
- (d) the most recent information regarding the environmental factors driving delta smelt salvage.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

- (a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion, as amended, and any successor opinions shall be implemented consistent with current best scientific and commercial data available, and implementation shall be adjusted accordingly as new scientific and commercial data is developed.

(b) Increased Monitoring to Inform Real-time Operations.— Contingent upon funding, additional surveys shall be conducted, on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests.

- (1) In implementing this section, the Secretary shall —

(A) use the most biologically appropriate survey methods for the detection of delta smelt to determine the extent that adult delta smelt are distributed in relation to certain levels of turbidity, or other environmental factors that may influence salvage rate; and

(B) use results from the most biologically appropriate survey methods for the detection of delta smelt to determine how the Central Valley Project and State Water Project may be operated more efficiently to minimize salvage while maximizing rates of water export.

- (2) During the period beginning on December 1, 2014 and ending March 31, 2015, and

in each successive December through March period, if suspended sediment loads enter the Delta from the Sacramento River and the suspended sediment loads appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units (NTU) to values above 12 NTU, the Secretary shall—

(A) conduct daily monitoring using the most biologically appropriate survey methods in Old River in the vicinity of Station 902, to determine the extent that adult Delta smelt are be moving with turbidity toward the export pumps; and

(B) use results from the monitoring surveys at Station 902 to determine how increased trawling can inform daily real-time Central Valley Project and State Water Project operations to minimize salvage while maximizing rates of water export.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Secretary determines it is appropriate, the Secretary shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the Delta, is providing sufficient data to inform Central Valley Project and State Water Project operations to minimize salvage while maximizing rates of water export; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— No later than January 1, 2016, contingent upon funding, the Secretary, in collaboration with Delta science partners, shall implement new targeted sampling and monitoring specifically designed to understand delta smelt abundance, distribution, and the types of habitat occupied by delta smelt during all life stages.

(2) SAMPLING.—The Delta smelt distribution study shall—

(A) include recording water quality and tidal data;

(B) be designed to understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) consider areas not routinely sampled by existing monitoring programs, including wetland channels, near-shore water, depths below 35 feet, and shallow-water; and

(D) use the most biologically appropriate survey methods, including sampling gear suited to the type of sampling or monitoring.

(e) Scientifically supported implementation of Old and Middle River Flow requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers so as to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River in the vicinity of Station 902 pursuant to this section indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cfs will cause significantly increased take of delta smelt; and

(4) show that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:

(A) the findings in paragraph (3);

(B) whether continued project operations over the remainder of the water year would exceed the incidental take level;

(C) the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the population throughout the Delta,

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(E) other factors relevant to the determination; and

(F) whether any alternative measures could have a lesser water supply impact.

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From: Tom Birmingham
Sent: Thursday, September 18, 2014 3:30 PM
To: 'Watts, John (Feinstein)'
CC: rpatterson@mwdh2o.com; 'Bernhardt, David L.'
Subject: FW: Current smelt language to show to Roger
Attachments: Alternative OMR Management 9-18-14.docx

John,

I shared this language with Roger, who then asked Brenda to review it. Roger had two suggested modifications, which are shown in the attachment to this email.. Neither is a substantive change. I also shared with Roger that David and Peg are developing language on the MOU.

Please let me know if you have any questions.

Tom

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Thursday, September 18, 2014 1:50 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: Current smelt language to show to Roger

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From: Watts, John (Feinstein)
Sent: Thursday, September 18, 2014 3:45 PM
To: 'Tom Birmingham'; 'Burman,Brenda W'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com)
CC: 'Bernhardt, David L.'
Subject: Current draft of full smelt title
Attachments: smelt title draft clean 9-18-14.docx

Attached is the full current draft of the smelt title. I have included Roger's two edits in redline; the rest is a clean draft.

Brenda, you will note that I included almost all of the edits you suggested to the ITL, monitoring, and distribution study subsections. Note that for most obligations, to avoid the question of whether it is the Commissioner or the Director's responsibility, I referred to the Secretary.

I did not include your language about what would require reconsultation, because we are addressing that in subsection (f), which Peg Romanik is redrafting.

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]
Sent: Thursday, September 18, 2014 6:30 PM
To: Watts, John (Feinstein)
Cc: rpatterson@mwdh2o.com; 'Bernhardt, David L.'
Subject: FW: Current smelt language to show to Roger

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Please let me know if you have any questions.

Tom

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Sent: Thursday, September 18, 2014 1:50 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: Current smelt language to show to Roger

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[I would prefer to discuss appropriate findings at a later date]

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(4) document in writing ~~show~~ that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:

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From: Burman,Brenda W

Sent: Thursday, September 18, 2014 3:58 PM

To: John Watts (john_watts@feinstein.senate.gov); Tom Birmingham (tbirmingham@westlandswater.org); DBernhardt@BHFS.com

CC: Patterson,Roger K; Sheehan,Rebecca D; Fullerton,David K

Subject: smelt entrainmnet background

Attachments: Entrainment discussion for Feinstein.docx

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Delta Smelt Entrainment

Entrainment is a relatively undefined concept encompassing a broad range of potential effects indirectly related to project operations. There is a high level of uncertainty regarding how many Delta Smelt are entrained each year; the environmental factors that contribute to entrainment; the relationships between project pumping, salvage, OMR and entrainment; and the population level effect of entrainment. As such, an entrainment investigation is appropriate, and should include studies attempting to directly measure entrainment.

In the biological opinion, the Fish and Wildlife Service relies on modeled estimates of entrainment, and considers those modeled estimates when establishing its incidental take levels.

It is important to distinguish between the concepts of “entrainment” and “salvage” when discussing the effects of the CVP-SWP. Entrainment can be described as an indirect effect of water project operations, and includes effects such as predation in Clifton Court Forebay. Entrainment could also include categories of effects that are far removed from project operations and that are difficult to identify and quantify, including, for example, hypothesized shifts in fish distributions to areas of higher mortality resulting from project related changes in hydrodynamics. Salvage is a more direct effect of the project representing Delta Smelt that are detected at the screens.

There is no published analysis concluding that either salvage or entrainment has a population level effect. The 2008 Delta Smelt BiOp at p. 210 acknowledges this fact (albeit mixing the concepts of salvage and entrainment) stating:

However, currently published analyses of long-term associations between delta smelt salvage and subsequent abundance do not support the hypothesis that entrainment is driving population dynamics year in and year out.¹

(See also, Kimmerer 2008 [“...despite substantial variability in export flow in years since 1982, no effect of export flow on subsequent mid-water trawl abundance is evident”]; Bennett 2005 [“...[C]urrently published analyses of long-term associations between delta smelt salvage and subsequent abundance do not support the hypothesis that entrainment is driving population dynamics year in and year out.”]; Grimaldo et al. 2009 [“...the extent to which entrainment losses affect Delta Smelt population dynamics is unclear.”].)

¹ The BiOp concludes that historically entrainment may have been “sporadically significant” based on Kimmerer 2008, where it was so hypothesized.

Since the 2008 biological opinion, there have been several life cycle modeling exercises. The results do not suggest that entrainment and/or salvage are driving population dynamics year in and year out, as follows:

- Thomson et al. 2010 [“...[D]ata support **relatively small effects** of winter exports.”];
- Miller et al. 2012 [entrainment correlated to survival from fall to summer but, “...**entrainment was not a statistically significant factor** in survival from fall to fall.”];
- MacNally et al. 2010 [“Several expectations were more **weakly supported** by the data, but were not refuted. Spring exports were negatively associated with abundances of delta smelt and threadfin shad.”];
- Maunder and Deriso 2011 [Best fit model **did not** identify entrainment as an important covariate. Entrainment identified in alternative model but not in best fit. Model was rerun in 2012 with an update of data through 2010 and the updated results indicate that **entrainment is not a robust covariate.**];
- Rose et al. 2013 (a) and (b) [Entrainment **not identified** as a major factor.]

Entrainment has not been quantified based on sampling or experimentation, so these life cycle models use modeled or other estimates of entrainment. The results of these modeling exercises are only as reliable as the assumptions that were used initially to estimate entrainment.

The 2008 Delta Smelt biological opinion does not rely on direct measurement of entrainment. The BiOp assumes that salvage is an index of entrainment even though the actual relationship between salvage and entrainment is unknown. Grimaldo et al. 2009 adopted this approach, explaining at p. 1256 that, “In this paper, we use salvage as an index of entrainment. Actual entrainment losses at the SWP and CVP are unknown....”

Castillo et al. 2012 attempted to determine the relationship between entrainment in Clifton Court Forebay and salvage through direct experimentation. However, as a result of the highly unusual environmental circumstances that existed during the study, including extremely low pumping rates, long residence times, and temperatures near and in excess of the species tolerances, the Castillo et al. results should be interpreted with caution. However, with additional experimentation, the relationship between entrainment and salvage could be better understood, and then salvage could be used more reliably as an index of entrainment.

The BiOp relies heavily on the estimates of entrainment in Kimmerer 2008. Kimmerer used OMR flow rather than salvage as an index of entrainment. In essence, Kimmerer found the density of smelt in the south Delta from survey data, and multiplied that density times OMR flow to get an entrainment estimate (uncorrected for gear efficiency). He then generated a total (uncorrected) population estimate by multiplying smelt densities by the volume for the entire Bay Delta system. He took the ratio of entrainment to population to get the fraction of the Delta Smelt population entrained.

Kimmerer 2008 acknowledged the large error bars and high level of uncertainty associated with his estimates of the percent of the population entrained in the project facilities, stating at p. 24, "The estimates have large confidence limits," and at p. 1, "...highest value [estimate of population entrained] may have been biased upward." Kimmerer made a series of assumptions to generate his entrainment estimates, including the assumption that Delta Smelt act like neutrally buoyant particles and that Delta Smelt are carried with net OMR flows into the export facilities. These assumptions are highly uncertain. Kimmerer 2008 further observed at p. 24, "The summer-fall index of survival varied over a range of 50-fold, and was significantly related to summer zooplankton in the low-salinity zone. This may indicate food-limited survival." This 50-fold variation made it difficult to reach any conclusions related to whether the high estimates of percent of the population entrained actually resulted in a population level effect.

From: Watts, John (Feinstein)

Sent: Thursday, September 18, 2014 4:39 PM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com); 'Burman,Brenda W'; Bernhardt, David L.

CC: Yeung, Felix (Feinstein)

Subject: Water operations review panel

Attachments: water operations review panel 9-18-14.docx

I intent to include the water operations review panel language that I sent the Administration a month ago to the complete draft bill that I send them tomorrow. I have reattached the language for your consideration.

I plan to include this language because I think it will help with holding the agencies accountable. While I think we have developed good substitute language for our original jeopardy approach for requiring the agencies to minimize water supply losses while implementing the biops, I think in the absence of applying the "jeopardy" standard to project operations, it would be helpful to have an additional mechanism for agency accountability.

The agencies also never explained why dropped the water operations review panel, and it may have been simply a byproduct of their opposition to virtually everything in their initial response.

SEC. 606. WATER OPERATIONS REVIEW PANEL.

(a) Establishment.—There is established a panel to be known as the “Water Operations Review Panel”.

(b) Membership.—

(1) COMPOSITION.—The Panel shall be composed of 5 members appointed by the Secretary of the Interior, in consultation with the Secretary of Commerce, of whom—

(A) 1 member shall be a former State elected official, who shall be the Chairperson of the Panel;

(B) 2 members shall be fisheries biologists, of whom—

(i) 1 member shall have expertise in Delta smelt; and

(ii) 1 member shall have expertise in salmonids; and

(C) 2 members shall have be engineers with substantial expertise in water operations.

(2) RECOMMENDATIONS. —The Secretary of the Interior shall consider the recommendations of the Governor of the State for the member appointed under subparagraph (A) and the recommendations of the Collaborative Science Adaptive Management Program policy group for the members appointed under subparagraphs (B) and (C).

(3) PROHIBITION ON FEDERAL GOVERNMENT EMPLOYMENT.—For at least three years prior to appointment to the Panel, an individual appointed to the Panel under paragraph (1) shall not have been an employee of the Federal Government.

(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

(c) Term; Vacancies.—

(1) TERMS.—A member of the Panel shall be appointed for a term of 3 years, except that, with respect to the members first appointed under this section—

(A) the Chairperson shall be appointed for a term of 3 years;

(B) of the members appointed under subsection (b)(1)(B)—

(i) 1 member shall be appointed for a term of 1 year; and

(iii) 1 member shall be appointed for a term of 2 years;

(C) of the members appointed under subsection (b)(1)(C)—

(i) 1 member shall be appointed for a term of 1 year; and

(ii) 1 member shall be appointed for a term of 2 years.

(2) VACANCIES.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(3) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

(d) Removal —A Member of the Panel may be removed from office by the Secretary of the Interior.

(e) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act.

(f) Duties.

(1) Assessment and Report on Agencies' Operational Decisions under this Act.—

(A) IN GENERAL.—No later than November 30, 2015, and annually no later than November 30 thereafter, the Panel shall report an assessment of the agencies' operational decisions under this Act and recommendations for the prospective implementation of this Act to the following Congressional committees:

- (i) Senate Committee on Environment and Public Works;
- (ii) Senate Appropriations Subcommittee on Energy and Water Development;
- (iii) House Natural Resources Committee; and
- (iv) House Appropriations Subcommittee on Energy and Water Development.

(B) RETROSPECTIVE ASSESSMENT.—In making the retrospective assessment under paragraph (1), the Panel shall review and evaluate the Director of the Fish and Wildlife Service, Administrator of NOAA Fisheries, and Commissioner of Reclamation's —

- (i) decisions in implementing this Act and other Federal laws applicable to the operations of the Central Valley Project and the State Water Project;
- (ii) compliance with the Endangered Species Act in relation to operations of the Central Valley Project and the State Water Project; and
- (iii) efforts to minimize water supply disruptions while complying with the Endangered Species Act and this Act.

(C) PROSPECTIVE RECOMMENDATIONS.—The Panel shall make recommendations for prospective actions and potential actions warranting further study to better achieve the purposes of this Act and the Endangered Species Act as applied to the operations of the Central Valley Project and the State Water Project, including proposals—

- (i) that in combination, both increase the population of listed species and increase water supplies for the Central Valley Project and the State Water Project;
- (ii) to increase the population of listed fish species with little to no adverse effects

on water supplies for the Central Valley Project and the State Water Project; and

(iii) to increase such water supplies with little to no adverse effects on the population of listed fish species.

(2) Submission of Comments and Proposals to Panel.—

(A) IN GENERAL.—In preparing the reports under subsections (a) and (b), the Panel shall invite comments and proposals from any interested person.

(B) SCHEDULE.—The Panel shall publish a schedule for receipt of comments and proposals under paragraph (1), together with instructions for how to submit the comments and proposals.

(f) Cooperation and Assistance. ---

(1) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of Commerce and the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(2) Space and Assistance --- The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

From: Watts, John (Feinstein)
Sent: Friday, September 19, 2014 7:12 AM
To: 'Tom Birmingham'
CC: Bernhardt, David L.
Subject: Technical question on the salmon language

Tom, Does the wording of paragraphs (1) and (2) look right to you, based on what we are trying to achieve, and the way D-1641 works?

- (e) Framework for examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Assistant Administrator shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available and for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—
- (1) with export restrictions specified that limit OMR flow to a fixed rate of -5000 cubic feet per second within the time period RPA Action IV.2.3 is applicable, as compared to the existing RPA Action IV.2.3, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
 - (2) with San Joaquin River inflow to export restrictions specified within RPA Actions IV.2.1 as compared to the export to Delta inflow requirements found in State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
 - (3) by a trap and barge program based on the experience of other comparable systems and the study described in section 202, as that information becomes available;
 - (4) through physical habitat restoration improvements;
 - (5) through predation control programs;
 - (6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;
 - (7) by salvaging entrained fish at the entrance to Clifton Court Forebay; and
 - (8) by any other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

From: Tom Birmingham
Sent: Friday, September 19, 2014 8:09 AM
To: 'Watts, John (Feinstein)'
CC: 'Bernhardt, David L.'
Subject: RE: Technical question on the salmon language

John,

I believe both paragraphs should refer to comparisons based on operations under D-1641.

The suggested language is below.

Tom

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Friday, September 19, 2014 7:12 AM
To: 'Tom Birmingham'
Cc: Bernhardt, David L.
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- (1) with export restrictions specified that limit OMR flow to a fixed rate of -5000 cubic feet per second within the time period RPA Action IV.2.3 is applicable, as compared to [operations under the export to inflow requirements of State Water Resources Control Board decision D-1641](#), holding other relevant factors constant;
 - (2) with San Joaquin River inflow to export restrictions specified within RPA Actions IV.2.1 as compared to the export [restrictions in the April/May period imposed by State Water Resources Control Board decision D-1641](#), based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
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From: Watts, John (Feinstein)
Sent: Friday, September 19, 2014 8:40 AM
To: 'Tom Birmingham'
CC: 'Bernhardt, David L.'
Subject: RE: Technical question on the salmon language

I am fine with your edits to (e)(2). I think (e)(1) should read as follows, because we are trying to make them evaluate how much benefit you get from the current RPA, as compared to what we want them to do:

- (e) Framework for examining opportunities to mitigate or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Assistant Administrator shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available and for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—
- (1) with export restrictions specified in RPA Action IV.2.3, as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period RPA Action IV.2.3 is applicable, holding other relevant factors constant;

From: Tom Birmingham [<mailto:tbirmingham@westlandswater.org>]
Sent: Friday, September 19, 2014 11:09 AM
To: Watts, John (Feinstein)
Cc: 'Bernhardt, David L.'
Subject: RE: Technical question on the salmon language

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Tom

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Sent: Friday, September 19, 2014 7:12 AM
To: 'Tom Birmingham'
Cc: Bernhardt, David L.
Subject: Technical question on the salmon language

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- (2) with San Joaquin River inflow to export restrictions specified within RPA Actions IV.2.1 as compared to the export [restrictions in the April/May period imposed by](#) State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (3) by a trap and barge program based on the experience of other comparable systems and the study described in section 202, as that information becomes available;
- (4) through physical habitat restoration improvements;
- (5) through predation control programs;
- (6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;
- (7) by salvaging entrained fish at the entrance to Clifton Court Forebay; and
- (8) by any other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

From: Burman,Brenda W
Sent: Friday, September 19, 2014 12:53 PM
To: Watts, John (Feinstein); 'Tom Birmingham'; Patterson,Roger K; Bernhardt, David L.
CC: Yeung, Felix (Feinstein)
Subject: RE: Water operations review panel

John, I think this panel should respond (prospectively) to the yearly science review panel. We are putting together a sentence to add to (f)(1)(C)

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Thursday, September 18, 2014 4:39 PM
To: 'Tom Birmingham'; Patterson,Roger K; Burman,Brenda W; Bernhardt, David L.
Cc: Yeung, Felix (Feinstein)
Subject: Water operations review panel

I intent to include the water operations review panel language that I sent the Administration a month ago to the complete draft bill that I send them tomorrow. I have reattached the language for your consideration.

I plan to include this language because I think it will help with holding the agencies accountable. While I think we have developed good substitute language for our original jeopardy approach for requiring the agencies to minimize water supply losses while implementing the biops, I think in the absence of applying the "jeopardy" standard to project operations, it would be helpful to have an additional mechanism for agency accountability.

The agencies also never explained why dropped the water operations review panel, and it may have been simply a byproduct of their opposition to virtually everything in their initial response.

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From: Burman,Brenda W
Sent: Friday, September 19, 2014 2:20 PM
To: Watts, John (Feinstein); 'Tom Birmingham'; Patterson,Roger K
CC: 'Bernhardt, David L.'; Yeung, Felix (Feinstein); Peterson, James (Feinstein); Duck, Jennifer (Feinstein)
Subject: sec 309
Attachments: temporary operational flexibility 9-18-14-BDS edits.docx

[Small edit suggestions to sec. 309](#)

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Friday, September 19, 2014 2:18 PM
To: 'Tom Birmingham'; Patterson,Roger K
Cc: 'Bernhardt, David L.'; Burman,Brenda W; Yeung, Felix (Feinstein); Peterson, James (Feinstein); Duck, Jennifer (Feinstein)
Subject: RE: Interior feedback on draft smelt title -- good news

This is the language from Section 308 of the existing bill, which is identical to the language in the Senate-passed bill, and the agencies have approved. Are you OK with this language if we remove the reference to the salmon biop?

(4) manage reverse flow in the Old and Middle Rivers as prescribed by the biological opinions issued by the United States Fish and Wildlife Service on December 15, 2008, for Delta smelt and by the National Marine Fisheries Service on June 4, 2009, for salmonids, or any successor biological opinions, to minimize water supply reductions for the Central Valley Project and the State Project....

From: Tom Birmingham [<mailto:tbirmingham@westlandswater.org>]
Sent: Friday, September 19, 2014 5:12 PM
To: Watts, John (Feinstein); 'Roger K. Patterson(rpatterson@mwdh2o.com)'
Cc: 'Bernhardt, David L.'; 'Burman,Brenda W'; Yeung, Felix (Feinstein); Peterson, James (Feinstein); Duck, Jennifer (Feinstein)
Subject: RE: Interior feedback on draft smelt title -- good news

John,

I am very concerned about adding "consistent with the relevant biological opinions described in subsection (e)(1) above" at the end of (e)(2). The agencies will assert that this language is an endorsement of the prior implementation of the biological opinions. They will argue that they have always managed OMR to avoid reductions in water supply, which we know is not the case. If any qualifying language is to be inserted it should be the language from the original Senate bill, "consistent with applicable laws (including regulations)." I do not believe even that language is necessary because there is nothing in the proposed language that would suggest existing law, including regulations, is being modified.

Subsection (e)(2) should be a strong, unqualified statement of congressional direction. The other provisions of this language take nothing away from the agency's ability to manage OMR for the protection of listed species.

Tom

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Friday, September 19, 2014 1:15 PM
To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com)
Cc: Bernhardt, David L.; 'Burman,Brenda W'; Yeung, Felix (Feinstein); Peterson, James (Feinstein); Duck, Jennifer

(Feinstein)

Subject: Interior feedback on draft smelt title -- good news

Mike, John, and Ren have all indicated that they can live with the attached draft smelt title. So you can understand the few redline edits, there are two different authors of the edits:

- 1) The larger set of edits, which includes the first edit striking “best science,” were made by Interior staff; and
- 2) Edits in a different color were made by me, with Bezdek’s concurrence. The main change I made was that Ren wanted to strike references to Station 902. I told Bezdek this was important to us, and Ren had previously said he could live with it. Bezdek then said I should refer to monitoring “including but not limited to in the vicinity of Station 902.” I made these changes. I also included Roger’s suggested edits to document “in writing” the findings Interior must make in managing OMR flows. Finally, I altered the heading for subsection (f) to reflect that it is no longer limited to the duration of the drought.

Note Peg’s edits to subsection (f) on the MOU. I think these edits are at least in the ballpark. I told John we would think about them over the weekend, and provide any suggested tweaks on Monday.

The good news here is that we have a draft smelt title that we collectively support and that Mike, John, and Ren can live with.

With this feedback from Interior, I am going to send the agencies a complete draft bill by COB today, and ask them for a signal that it is something they can live with, and that it lacks any major red flags of the type they perceived with the jeopardy language. We will press them for an affirmative answer on this point with whatever (hopefully few) edits they need as soon as possible, so we can move on to negotiations with the House.

Have a good weekend!

John

This communication, together with any attachments or embedded links, is for the sole use of the intended recipient(s) and may contain information that is confidential or legally protected. If you are not the intended recipient, you are hereby notified that any review, disclosure, copying, dissemination, distribution or use of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately by return e-mail message and delete the original and all copies of the communication, along with any attachments or embedded links, from your system.

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- 1) During the 2013-2014 water year, operations of the Central Valley Project and the State Water Project resulted in zero, ~~the~~ incidental take of adult Delta smelt ~~was zero~~; of juvenile Delta smelt, 78 (7.7% of the incidental take limit); of winter run chinook, 339 (1.4% of the incidental take limit); of spring run chinook, zero; and of steelhead, 261 (8.7% of the incidental take limit).
- 2) The Central Valley Project and State Water Project exceeded a combined pumping capacity of -5,000 cubic feet per second over a 14-day average for brief periods after three storm events in February and March 2014, but did not cause substantially increased take of smelt or salmon.
- 3) As stated in Title II of this Act, the latest scientific studies have not shown a substantiated connection between water pumping and salmon survival rates.
- 4) Hydrological conditions in dry years, such as the 2013-2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- 5) The Secretaries should be allowed more flexibility to increase pumping levels without causing significant risk to the listed species for fish and other endangered Species or weakening other environmental protections.
- 6) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the 2014-2015 water year, and provide for the diversion of those supplies at the CVP-SWP so that farms, businesses, and homes so that drought stricken areas in the areas with the most severe drought risks will have an opportunity to bolster their meager supplies when water is available.

(b) ~~Goal. To the maximum extent possible~~ Consistent with avoiding jeopardy under the ~~Endangered Species Act significant take of listed fish likely to result in exceeding the incidental take level in the biological opinions and other environmental protections under subsection (e),~~ the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at -7500 cubic feet per second for 21 cumulative days ~~of high outflow~~ after October 1, 2014, as described in subsection (c).

(c) Days of temporary operational flexibility, high outflow. ~~The d~~Days of temporary operational flexibility, high outflow described in subsection (b) shall be authorized on ~~constitute~~ days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

(d) ~~Avoiding jeopardy~~ Compliance with incidental take authorization. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of temporary operational flexibility, high outflow if they determine that otherwise project operations over the remainder of the water year would exceed the incidental take authorizations in the biological opinions.

~~(1) Demonstrate, including an explanation of the data examined and the connection between those data and the choice made, why such provisions are necessary in the short term to avoid jeopardy after considering other alternatives, if any, that may have a lesser water supply impact; and~~

(e) Other environmental protections.

- 1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year; ~~are met;~~
- 2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;
- 3) This section shall not have any effect on the ~~applicable~~ requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of ~~the such applicable~~ requirements of the salmonid biological opinion may be relaxed during this time period to provide emergency water supply relief without ~~exceeding the incidental take level; causing jeopardy;~~
- 4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential negative impacts and actions necessary to mitigate any impacts of the temporary operational flexibility to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and
- 5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements off this section.

(f) Technical adjustments to target period. If, before the goal in subsection (b) is met, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative than -7500 cubic feet per second during days of temporary operational flexibility high outflow as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) ~~Emergency consultation; e~~Effect on running averages.

1) If necessary to implement the provisions of this section, the Commissioner shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of temporary operational flexibility high outflow —

A) no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e); and

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B) including, as appropriate, adjustments to ensure that the actual flow rates during the periods of temporary operational flexibility do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.

2) Following the conclusion of the 21 days of temporary operational flexibility high outflow, the Commissioner shall not need to reinitiate consultation on the biological opinions if the effects of operations under this section remain within the incidental take authorizations.

~~For the purpose of carrying out subsection (b), the periods during which the combined operations of Central Valley Project and the State Water Project result in Old and Middle River flows more negative than -5000 cubic feet per second, and the actual flow rates during such periods, shall not be counted toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.~~

(i) Duration. This section shall expire on September 30, 2015.

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From: Burman,Brenda W

Sent: Friday, September 19, 2014 2:51 PM

To: John Watts (john_watts@feinstein.senate.gov); Tom Birmingham (tbirmingham@westlandswater.org); DBernhardt@BHFS.com

CC: Patterson,Roger K

Subject: Title II Section 203 09-19-14 edit

Attachments: Title II Section 203 09-19-14.docx

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SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

- (a) General Directive. The reasonable and prudent alternative described in the 2009 salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.
- (b) Annual reviews of certain operating criteria. No later than December 31, 2015, and at least annually thereafter,
1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall examine and identify adjustments to the timing of pumping operations in Action IV.2.3 pertaining to negative OMR flows.
 2. The Assistant Administrator shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in Action IV.2.1 pertaining to the inflow to exports requirements.
 3. Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator make recommendations to the Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can maximize rates of water export improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).
 4. The Assistant Administrator and the Commissioner shall implement those adjustments for which the conditions under paragraph (3) of this subsection are met.
 5. The Assistant Administrator and the Commissioner shall review and identify adjustments to water supply restrictions in any successor, or amendment to, biological opinion to the salmon biological opinion, applying the provisions of this section to those water supply restrictions where there are references to OMR and San Joaquin River inflow to export ratio, or similar provision limiting exports based on Delta inflow, to Actions IV.2.1 and IV.2.3.
- (c) Adjustments that shall be implemented. In making the recommendations under subsection (b), the Assistant Administrator shall evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner adjustments for which:
1. the net effect on listed species is at worst equivalent comparable to those of the underlying criteria, taking into account whatever actions or measures may be

- implemented in conjunction with the adjustments to mitigate its effects; and
- 2. the effects of the adjustment fall within the incidental take authorizations ~~contained therein.~~

(d) Taking into account offsetting species survival benefits from other measures.

1. When examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria as described in (b) and (c), the Commissioner and the Assistant Administrator shall take into account the potential salmonid survival improvements that are likely to result from other measures which ~~if implemented in conjunction with the adjustments,~~ would offset the adverse effects of CVP and SWP operations the adjustment while maximizing rates of water export, and with minimal adverse effects on water supply improvements.
2. The offsetting measures could include actions implemented with the support of a ~~substantial~~ contribution from water districts that would benefit from the adjustments.

(e) Framework for examining opportunities to offset potential adverse effects of the CVP and SWP while maximizing rates of water export ~~minimize or offset the potential adverse effect of adjustments to operating criteria.~~—Not later than December 31, 2015, and every five years thereafter, the Assistant Administrator shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available and for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—

- (1) with export restrictions as specified in ~~on~~ Action IV.2.3 as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (2) with San Joaquin River inflow to export restrictions specified within Actions IV.2.1 as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (3) by a trap and barge program based on the experience of other comparable systems and the study described in section 202, as that information becomes available;
- (4) through physical habitat restoration improvements;
- (5) through predation control programs;
- (6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;
- (7) by salvaging entrained fish at the entrance to Clifton Court Forebay; and
- (8) by any other management measures that may provide equivalent or better benefits for

Commented [A1]: In light of paragraph c, I cannot image what would need to be mitigated. Therefore, I tried to describe in terms of alternative actions that meet the ITL, are comparable in benefit to existing RPA, and that would maximize export and offset the effects of the project. The concept is an alternative RPA that could replace pumping restriction or be adopted in addition to relaxation of an RPA.

listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

- 1) The Assistant Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.
- 2) If the Assistant Administrator provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.
- 3) If at the time the Assistant Administrator conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

(1) For the purposes of this subsection—

(A) The alternative management measure or combination of alternative management measures identified in paragraph (2) shall be known as the “equivalent alternative measure.”

(B) The existing measure or measures identified in subparagraphs (2)(A),(B),(C), or (D) shall be known as the “equivalent existing measure.”

(C) An “equivalent increase in through-Delta survival rates for listed salmonid species” shall mean an increase in through-Delta survival rates that is comparable ~~equivalent~~ when considering the change in through-Delta survival rates for the listed salmonid species considered as a whole, and not necessarily the same change for each individual species.

(2) As part of the reviews of operating criteria pursuant to subsection (b), the Assistant Administrator shall determine whether any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) would provide an increase in through-Delta survival rates for listed salmonid species that is comparable ~~equivalent~~ to the increase in through-Delta survival rates for listed salmonid species from:

(A) limiting OMR flow to levels less negative than -5000 cubic feet per second under Action IV.2.3;

Commented [A2]: There is a bit of range of OMR less negative than -5000. Do we want to say -2,500 or something else that is more specific.

~~(B) the difference between the current Action IV.2.3 and~~ a modified version of Action IV.2.3 that would maximize CVP and SWP water exports~~provide additional water supplies;~~

~~(C) Implementation of the OMR pursuant to Action IV.2.3;~~

~~(D)~~ implementation of the inflow to export ratio pursuant to Action IV.2.1; or

~~(E) the difference between the current Action IV.2.1 and~~ a modified version of Action IV.2.1 that would maximize CVP and SWP water exports~~provide additional water supplies.~~

Commented [A3]: I changed this because as written we would be comparing the difference between a modified water operation and the BiOp RPA to a non-operational alternative. It seems each operational and non-operational alternative should be compared to the BiOp.

(3) If the Assistant Administrator identifies an equivalent alternative measure pursuant to paragraph (2), the Assistant Administrator shall determine whether

(A) it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, and

(B) the adverse consequences of doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

(4) If the Assistant Administrator makes the findings in subparagraph (3)(A) and (B), the Assistant Administrator and the Commissioner shall adjust the operating criteria in the salmon biological opinion pursuant to this subsection to implement the equivalent alternative measure in place of the equivalent existing measure in order to increase water supplies to the greatest extent possible while maintaining a net combined effect of equivalent through-Delta survival rates for the listed salmonid species.

(h) Tracking incidental take levels and coordinated operation with smelt biological opinion.

(1) Among the adjustments to the operational criteria considered through the adaptive management process under this section, the Assistant Administrator and the Commissioner shall

A) Evaluate the effect on through-Delta survival rates for listed salmonid species and water supply benefits of imposing part or all of the provisions of Actions IV.2.1 and IV.2.3 only in instances where necessary to do so in order to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year; and

B) Consider requiring that before some or all of the provisions of Actions IV.2.1. or IV.2.3 are imposed in any specific instance, the Assistant Administrator show that the implementation of these provisions in that specific instance is necessary to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year.

(2) Through tracking incidental take levels or some other mechanism, the Assistant Administrator and the Commissioner shall consider establishing operational criteria to coordinate management of OMR flows under the smelt and salmon biological opinions, in order to take advantage of opportunities to provide additional water supplies from the coordinated implementation of the biological opinions.

From: Watts, John (Feinstein)

Sent: Friday, September 19, 2014 4:42 PM

To: 'Tom Birmingham'; Roger K. Patterson (rpatterson@mwdh2o.com) (rpatterson@mwdh2o.com)

CC: Bernhardt, David L.; 'Burman,Brenda W'; Yeung, Felix (Feinstein)

Subject: Current draft of complete water language

Attachments: draft language 9-19-14.docx

Hi all. I just sent this language to John Bezdek and Will Stelle. Please take a look at it to make sure nothing significant was omitted.

Have a great weekend!

John

Title: To provide drought relief in the State of California, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) Short Title.—This Act may be cited as the “California Drought Relief Act of 2014”.

(b) Table of Contents.—The table of contents of this Act is as follows:

Sec.1.Short title; table of contents.

Sec.2.Findings.

Sec.3.Definitions.

TITLE I—ADJUSTING DELTA SMELT MANAGEMENT BASED ON INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE

Sec.101.Definitions.

Sec.102.Revise incidental take level calculation to reflect new science.

Sec.103.Factoring increased real-time monitoring and updated science into delta smelt management.

TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

Sec.201.Definitions.

Sec.202.Required scientific studies.

Sec.203.Process for ensuring salmonid management is responsive to new science.

Sec.204.Pilot program to protect native anadromous fish in the Stanislaus River.

Sec.205.CALFED invasive species pilot projects in the Sacramento-San Joaquin Bay Delta and its tributaries.

Sec.206.Mark fishery and harvest management.

Sec.207.New actions to benefit Central Valley salmonids.

TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT RELIEF

Sec.301.Findings.

Sec.302.Definitions.

- 1 Sec.303.Operational flexibility in times of drought.
- 2 Sec.304.Operation of cross-channel gates.
- 3 Sec.305.Flexibility for export/inflow ratio.
- 4 Sec.306.Emergency environmental reviews.
- 5 Sec.307.Prioritizing State revolving funds during droughts.
- 6 Sec.308.Increased flexibility for regular project operations.
- 7 Sec.309.Temporary operational flexibility for first few storms of 2014-2015 water year.
- 8 Sec.310.Expediting water transfers.
- 9 Sec.311.Warren Act contracts. [PLACEHOLDER]
- 10 Sec.312.Additional Warren Act contracts. [PLACEHOLDER]

TITLE IV—INCREASING WATER STORAGE

- 12 Sec.401.Findings.
- 13 Sec.402.Calfed storage feasibility studies.
- 14 Sec.403.Water storage project construction.
- 15 Sec.404.Other storage feasibility studies.
- 16 Sec.405.Dam safety projects with increased storage component.
- 17 Sec.406.Updating water operations manuals for non-Federal projects.
- 18 Sec.407.Central Valley Project.

TITLE V—WATER RIGHTS PROTECTIONS

- 20 Sec.501.Protections for State water project contractors.
- 21 Sec.502.Area of origin protections.
- 22 Sec.503.No redirected adverse impacts.
- 23 Sec.504.Effect on State laws.

TITLE VI—MISCELLANEOUS

- 25 Sec.601.Authorized service area.
- 26 Sec.602.Rescheduled water.
- 27 Sec.603.Fisheries disaster declaration.
- 28 Sec.604.Oversight board for Restoration Fund.
- 29 Sec.605.Water operations review panel.
- 30 Sec.606.Contingency in event of continuing resolution for fiscal year 2015.

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SEC. 2. FINDINGS.

Congress finds that—

(1) As established in the Proclamation of a State of Emergency issued by the Governor of the State on January 17, 2014, the State is experiencing record dry conditions;

(2) Extremely dry conditions have persisted in the State since 2012, and the drought conditions are likely to persist into the future;

(3) As of September 2014, the National Weather Service's forecast does not show a high likelihood of the State experiencing significant precipitation for the remainder of the year.

(4) The water supplies of the State are at record-low levels, as indicated by the fact that all major Central Valley Project reservoir levels were at or below 40 percent of capacity as of September 11, 2014;

(5) The lack of precipitation has been a significant contributing factor to the 6,091 fires experienced in the State as of September 15, 2014, and which covered nearly 400,000 acres.

(6) According to a study released by the University of California, Davis in July 2014, the drought has led to the fallowing of 428,000 acres of farmland, loss of \$810 million in crop revenue, loss of \$203 million in dairy and other livestock value, and increased groundwater pumping costs by \$454 million. The statewide economic costs are estimated to be \$2.2 billion, with over 17,000 seasonal and part-time agricultural jobs lost.

(7) Water deliveries to refuges have also declined by 25% in the north of Delta region, and by 35% in the south of Delta region.

(8) Only one-sixth of the usual acres of rice fields are being flooded, which leads to a significant decline in habitat for migratory birds and an increased risk of disease at the remaining wetlands due to overcrowding of such birds.

(9) The drought of 2013 through 2014 constitutes a serious emergency that poses immediate and severe risks to human life and safety and to the environment throughout the State;

(10) The serious emergency described in paragraph (4) requires—

(A) immediate and credible action that respects the complexity of the water system of the State and the importance of the water system to the entire State; and

(B) policies that do not pit stakeholders against one another, which history shows only leads to costly litigation that benefits no one and prevents any real solutions;

(11) Federal law (including regulations) directly authorizes expedited decisionmaking procedures and environmental and public review procedures to enable timely and appropriate implementation of actions to respond to the type and severity of the serious emergency described in paragraph (4); and

(12) The serious emergency described in paragraph (4) fully satisfies the conditions necessary for the exercise of emergency decisionmaking, analytical, and public review requirements under—

(A) the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

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(B) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.);

(C) water control management procedures of the Corps of Engineers described in section 222.5 of title 33, Code of Federal Regulations (including successor regulations); and

(D) the Reclamation States Emergency Drought Relief Act of 1991 (Public Law 102–250; 106 Stat. 53).

(13) The 2008 smelt biological opinion and 2009 salmon biological opinion contain reasonable and prudent alternatives to protect endangered fish species from being harmed by operation of the Central Valley Project and State Water Project.

(14) These reasonable and prudent alternatives in the biological opinions restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(15) Data on the difference between water demand and reliable water supplies for various regions south of the delta, including the San Joaquin Valley, indicate there is a significant annual gap between reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs within the South of Delta and Friant Division of the Central Valley Project and the State Water Project south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range and the demands of those areas. This gap varies depending on the methodology of the analysis performed, but can be represented in the following ways:

(a) For Central Valley Project South-of-Delta water service contractors, if it is assumed that a water supply deficit is the difference in the amount of water available for allocation versus the maximum contract quantity, particularly in more recent years, then the water supply deficits that have developed from 1992 to 2014 as a result of changes besides natural variations in hydrology during this timeframe range between 720,000 and 1,100,000 acre-feet.

(b) For Central Valley Project and State Water Project water service contractors south of the Delta and north of the Tehachapi mountain range, if it is assumed that a water supply deficit is the difference between reliable water supplies, including maximum water contract deliveries, safe yield of groundwater, safe yield of local and surface supplies and long-term contracted water transfers, and water demands, including water demands from agriculture, municipal and industrial and refuge contractors, then the water supply deficit ranges between approximately 2,500,000 to 2,700,000 acre-feet.

(c) The California Water Plan evaluated outcomes under current conditions under 198 combinations of climate and growth scenarios, projecting a range of urban and agricultural reliability into the future. Reliability in this instance is defined as the percentage of years in which demand is sufficiently met by supply. Reliability across a range of futures within the San Joaquin Valley can be presented as:

(1) For the San Joaquin River Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 90 and 100

percent, with a mean reliability across futures in the high 90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile.

(2) For the Tulare Lake Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 20 and 100 percent, with a mean reliability across futures in the low 70th percentile.

(16) Since the issuance of the biological opinions, considerably uncertainty still exists about the benefits to endangered fish populations from water pumping restrictions. For example, hydrodynamic data, acoustic telemetry studies, and other recent studies found that through-Delta survival rates of salmonid species do not correlate directly and clearly with certain water pumping restrictions, in particular limitations to Old and Middle River flows to levels less negative than -5,000 cubic feet per second.

(17) Data of pumping activities at the Central Valley Project and State Water Project delta pumps identifies that, on average from 2008 to 2014, pumping activity takes 893 delta smelt annually with an authorized take level of 5,003 delta smelt annually – according to the biological opinion issued December 15, 2008.

(18) It is worth exploring whether there is a way to implement the biological opinions that would preserve the protections afforded endangered fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

(19) In 2014, better information exists than was known in 2008 concerning conditions and operations that may or may not lead to high salvage events that jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

(20) Alternative management strategies, such as trapping and barging juvenile salmon through the Delta, removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time can contribute significantly to protecting and recovering these endangered fish species, and at potentially lower costs to water supplies.

(21) Resolution of fundamental policy questions concerning the extent to which application of the Endangered Species Act affects the operation of the Central Valley Project and State Water Project is the responsibility of Congress.

SEC. 3. DEFINITIONS.

In this Act:

(1) DELTA.—The term “Delta” means the Sacramento-San Joaquin Delta and the Suisun Marsh, as defined in sections 12220 and 29101 of the California Public Resources Code.

(2) Export Pumping Rates.—The term “export pumping rates” means the rates of pumping at the W.C. “Bill” Jones Pumping Plant and the Harvey O. Banks Pumping Plant, in the southern Delta.

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(3) JEOPARDY.—The term “jeopardy” means to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.

(4) OMR.—The term “OMR” means the Old and Middle River in the Delta.

(5) OMR FLOW OF -5000 CFS.—The term “OMR flow of -5000 cfs” means Old and Middle River flow of negative 5,000 cubic feet per second as measured by—

(A) the smelt biological opinion; and

(B) the salmonid biological opinion.

(6) SALMONID BIOLOGICAL OPINION.—The term “salmonid biological opinion” means the biological opinion issued by the National Marine Fisheries Service on June 4, 2009.

(7) SMELT BIOLOGICAL OPINION.—The term “smelt biological opinion” means the biological opinion on the Long-Term Operational Criteria and Plan for coordination of the Central Valley Project and State Water Project issued by the United States Fish and Wildlife Service on December 15, 2008.

(8) STATE.—The term “State” means the State of California.

**TITLE I—ADJUSTING DELTA SMELT MANAGEMENT
BASED ON INCREASED REAL-TIME MONITORING AND
UPDATED SCIENCE**

SEC. 101. DEFINITIONS.

In this title:

(1) DIRECTOR.—The term “Director” means the Director of the United States Fish and Wildlife Service.

(2) DELTA SMELT.—The term “delta smelt” means the fish species with the scientific name *Hypomesus transpacificus*.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Interior.

**SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA
SMELT TO REFLECT NEW SCIENCE.**

No later than October 1, 2015, the Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data available to complete a review and, if warranted, a modification of the incidental take level in the 2008 delta smelt biological opinion that takes into account, among other considerations,—

(a) salvage information available over at least 18 years;

(b) updated or more recently developed statistical models;

- (c) updated scientific and commercial data; and
- (d) the most recent information regarding the environmental factors driving delta smelt salvage.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion, as amended, and any successor opinions shall be implemented consistent with current best scientific and commercial data available, and implementation shall be adjusted accordingly as new scientific and commercial data is developed.

(b) Increased Monitoring to Inform Real-time Operations.—Contingent upon funding, the Secretary shall conduct additional surveys, on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests.

(1) In implementing this section, after seeking public input, the Secretary shall —

(A) use the most appropriate survey methods for the detection of delta smelt to determine the extent that adult delta smelt are distributed in relation to certain levels of turbidity, or other environmental factors that may influence salvage rate; and

(B) use results from appropriate survey methods for the detection of delta smelt to determine how the Central Valley Project and State Water Project may be operated more efficiently to minimize salvage while maximizing rates of water export.

(2) During the period beginning on December 1, 2014 and ending March 31, 2015, and in each successive December through March period, if suspended sediment loads enter the Delta from the Sacramento River and the suspended sediment loads appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units (NTU) to values above 12 NTU, the Secretary shall—

(A) conduct daily monitoring using appropriate survey methods at locations including, but not limited to, the vicinity of Station 902 to determine the extent that adult Delta smelt are moving with turbidity toward the export pumps; and

(B) use results from the monitoring surveys at locations including, but not limited to, the vicinity of Station 902 to determine how increased trawling can inform daily real-time Central Valley Project and State Water Project operations to minimize salvage while maximizing rates of water export.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Secretary determines it is appropriate, the Secretary shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the Delta, is providing sufficient data to inform Central Valley Project and State Water Project operations to minimize salvage while

maximizing rates of water export; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— No later than January 1, 2016, contingent upon funding, the Secretary, in collaboration with Delta science partners, shall implement new targeted sampling and monitoring specifically designed to understand delta smelt abundance, distribution, and the types of habitat occupied by delta smelt during all life stages.

(2) SAMPLING.—The Delta smelt distribution study shall, at a minimum—

(A) include recording water quality and tidal data;

(B) be designed to understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) consider areas not routinely sampled by existing monitoring programs, including wetland channels, near-shore water, depths below 35 feet, and shallow-water; and

(D) use the most biologically appropriate survey methods, including sampling gear suited to the type of sampling or monitoring.

(e) Scientifically supported implementation of Old and Middle River Flow requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers as prescribed by the smelt biological opinion, or any successor biological opinion, to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document in writing any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River pursuant to this section, including monitoring in the vicinity of Station 902, indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cubic feet per second will cause significantly increased take of delta smelt; and

(4) show in writing that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid a significant population level effect on the Delta smelt, including an explanation of the data examined and the

connection between those data and the choice made, after considering:

(A) the findings in paragraph (3);

(B) whether continued project operations over the remainder of the water year would exceed the incidental take level;

(C) the potential effects of entrainment on subsequent smelt abundance, including consideration of the distribution of the population throughout the Delta,

(D) the water temperature,

(E) other factors relevant to the determination; and

(F) whether any alternative measures could have a lesser water supply impact.

(f) Memorandum of Understanding. No later than December 1, 2014, the Commissioner and the Director will execute of Memorandum of Understanding (MOU) to ensure that the smelt biological opinion is implemented in a manner that minimizes water supply losses while complying with applicable laws and regulations. If that MOU alters any procedures set out in the biological opinion, there will be no need to reinitiate consultation if those changes do not have an adverse effect on listed species and the implementation of the MOU would not be a major change to implementation of the biological opinion. Any change to procedures that does not create a new adverse effect to listed species will not alter the parties' take coverage under the biological opinion.

TITLE II—ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE

SEC. 201. DEFINITIONS.

In this title:

(1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the Assistant Administrator of NOAA Fisheries..

(2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin steelhead, natural origin genetic spring run Chinook, and genetic winter run salmon smolts.

(3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin

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watershed though the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Assistant Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Assistant Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Assistant Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Assistant Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to the Senate Environment and Public Works Committee and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner's recommendations regarding broadening the pilot program and adjusting the provisions of the salmon biological opinion pursuant to section 203.

(b) Tagging studies.

(1) IN GENERAL.—The Assistant Administrator, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed. Studies may also be conducted to aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

SEC. 203. PROCESS FOR ENSURING SALMONID
MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

- (a) General directive. The reasonable and prudent alternative described in the salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.
- (b) Annual reviews of certain operating criteria. No later than December 31, 2015, and at least annually thereafter,
1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall examine and identify adjustments to the timing of pumping operations in Action IV.2.3 pertaining to negative OMR flows.
 2. The Assistant Administrator shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in Action IV.2.1 pertaining to the inflow to exports requirements.
 3. Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator make recommendations to the Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).
 4. The Assistant Administrator and the Commissioner shall implement those adjustments for which the conditions under subsection (c) are met.
 5. The Assistant Administrator and the Commissioner shall review and identify adjustments to water supply restrictions in any successor biological opinion to the salmon biological opinion, applying the provisions of this section to those water supply restrictions where there are references to Actions IV.2.1 and IV.2.3.
- (c) Adjustments that shall be implemented. In making the recommendations under subsection (b), the Assistant Administrator shall evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner adjustments for which:
1. the net effect on listed species is at worst equivalent to those of the underlying criteria, taking into account whatever actions or measures may be implemented in conjunction with the adjustments to mitigate its effects; and
 2. the effects of the adjustment fall within the incidental take authorizations.

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(d) Taking into account offsetting species survival benefits from other measures.

1. When examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria as described in (b) and (c), the Commissioner and the Assistant Administrator shall take into account the potential salmonid survival improvements that are likely to result from other measures which, if implemented in conjunction with the adjustments, would offset the adverse effects of the adjustments.
2. The offsetting measures could include actions implemented with the support of a substantial contribution from water districts that would benefit from the adjustments.

(e) Framework for examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Assistant Administrator shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available and for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—

- (1) with export restrictions as specified by Action IV.2.3 as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (2) with San Joaquin River inflow to export restrictions specified within Action IV.2.1 as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (3) by a trap and barge program based on the experience of other comparable systems and the study described in section 202, as that information becomes available;
- (4) through physical habitat restoration improvements;
- (5) through predation control programs;
- (6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;
- (7) by salvaging entrained fish at the entrance to Clifton Court Forebay; and
- (8) by any other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

- 1) The Assistant Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific

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information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

2) If the Assistant Administrator provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival relative to the other measures.

3) If at the time the Assistant Administrator conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

(1) For the purposes of this subsection—

(A) The alternative management measure or combination of alternative management measures identified in paragraph (2) shall be known as the “equivalent alternative measure.”

(B) The existing measure or measures identified in subparagraphs (2)(A),(B),(C), or (D) shall be known as the “equivalent existing measure.”

(C) An “equivalent increase in through-Delta survival rates for listed salmonid species” shall mean an increase in through-Delta survival rates that is equivalent when considering the change in through-Delta survival rates for the listed salmonid species considered as a whole, and not necessarily the same change for each individual species.

(2) As part of the reviews of operating criteria pursuant to subsection (b), the Assistant Administrator shall determine whether any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) would provide an increase in through-Delta survival rates for listed salmonid species that is equivalent to the increase in through-Delta survival rates for listed salmonid species from the following:

(A) with export restrictions as specified by Action IV.2.3, as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable;

(B) with export restrictions as specified by Action IV.2.3, as compared to a modification of Action IV.2.3 that would provide additional water supplies, other than that described in subparagraph (A);

(C) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, or

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(D) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to a modification of Action IV.2.1 that would provide additional water supplies, other than that described in subparagraph (C).

(3) If the Assistant Administrator identifies an equivalent alternative measure pursuant to paragraph (2), the Assistant Administrator shall determine whether

(A) it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, and

(B) the adverse consequences of doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

(4) If the Assistant Administrator makes the findings in subparagraph (3)(A) and (B), the Assistant Administrator and the Commissioner shall adjust the operating criteria in the salmon biological opinion pursuant to this subsection to implement the equivalent alternative measure in place of the equivalent existing measure in order to increase water supplies to the greatest extent possible while maintaining a net combined effect of equivalent through-Delta survival rates for the listed salmonid species.

(h) Tracking incidental take levels and coordinated operation with smelt biological opinion.

(1) Among the adjustments to the operational criteria considered through the adaptive management process under this section, the Assistant Administrator and the Commissioner shall

A) Evaluate the effect on through-Delta survival rates for listed salmonid species and water supply benefits of imposing part or all of the provisions of Actions IV.2.1 and IV.2.3 only in instances where necessary to do so in order to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year; and

B) Consider requiring that before some or all of the provisions of Actions IV.2.1. or IV.2.3 are imposed in any specific instance, the Assistant Administrator show that the implementation of these provisions in that specific instance is necessary to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year.

(2) Through tracking incidental take levels or some other mechanism, the Assistant Administrator and the Commissioner shall consider establishing operational criteria to coordinate management of OMR flows under the smelt and salmon biological opinions, in order to take advantage of opportunities to provide additional water supplies from the coordinated implementation of the biological opinions.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADRAMOUS FISH IN THE STANISLAUS RIVER.

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native

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1 predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth
2 bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the
3 Stanislaus River. The pilot program shall--

4 (1) be scientifically based;

5 (2) include methods to quantify the number and size of predator fishes removed each
6 year, the impact of such removal on the overall abundance of predator fishes, and the impact
7 of such removal on the populations of juvenile anadromous fish found in the Stanislaus
8 River and elsewhere by, among other things, evaluating the number of juvenile anadromous
9 fish that migrate past the rotary screw trap located at Caswell;

10 (3) among other methods, use wire fyke trapping, portable resistance board weirs, and
11 boat electrofishing, which are among the most effective predator collection techniques that
12 minimize effects to native anadromous fish;

13 (4) be developed, including the application for all necessary scientific research and
14 species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973
15 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months
16 after the date of the enactment of this Act;

17 (5) be implemented on the first business day of the calendar year following the issuance
18 of all necessary scientific research and species enhancement permits needed to begin the
19 pilot program; and

20 (6) be implemented for a period of seven consecutive calendar years.

21 (b) Management. The Assistant Administrator is authorized and encouraged to enter into
22 agreements with interested local water districts to jointly develop, implement and evaluate this
23 pilot program. Such parties shall work collaboratively to ensure the performance of the pilot
24 program, and shall discuss and agree upon, among other things, changes in the structure,
25 management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot
26 program.

27 (c) Conduct.—

28 (1) IN GENERAL.— By agreement between the Assistant Administrator and the
29 participating districts, the pilot program may be conducted by their own personnel, qualified
30 private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to
31 NOAA Fisheries, or a combination thereof.

32 (2) PARTICIPATION BY NOAA FISHERIES.—In the event the districts elect to conduct the
33 program using their own personnel or qualified private contractors hired by them, the
34 Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to
35 NOAA Fisheries, to be present for all activities performed in the field. Such presence shall
36 ensure compliance with the agreed upon elements specified in subsection (b). The districts
37 shall pay 100 percent of the cost of such participation as specified in subsection (d).

38 (3) TIMING OF ELECTION.—The districts shall notify the Assistant Administrator of their
39 election on or before October 15 of each calendar year of the pilot program, which election
40 shall apply to the work performed in the subsequent calendar year.

41 (d) Funding.—

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(1) ANNUAL FUNDING.—The Commission, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to the fund directed by the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

(2) ACCOUNTING.—On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation.—

(1) IN GENERAL.—On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT.—On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly publish a peer reviewed report that—

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process.—

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews.—To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions.—For the purposes of this section:

(1) COMMISSIONER.—The term ‘Commissioner’ means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS.—The term ‘districts’ means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM.—The term ‘program’ means the pilot non-native predator removal program established under this section.

(i) Sunset.—The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California’s water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento–San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed’s ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which

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1 include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause
2 biological stress for pelagic and anadromous endangered or threatened fish species in the
3 Sacramento-San Joaquin Bay-Delta and its tributaries.

4 (5) If threats by nonnative species to native fish species are not addressed, there is a high
5 probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's
6 pelagic and anadromous community will go extinct.

7 (6) The CALFED legislation (Public Law 108-361) authorized a program to prevent,
8 control, and eradicate invasive species, but it has not been implemented to date.

9 (7) A focused pilot program needs to be conducted within the Delta and river tributaries
10 to reduce threats to native listed species by nonnative species. Reducing nonnative stressors
11 on native listed species will contribute to both native listed species recovery and lowering
12 the impact on downstream water users as those native listed species recover.

13 (b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

14 (1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the
15 Secretary of Commerce and the Director of the California Department of Fish and Wildlife,
16 shall begin pilot projects to implement the invasive species program, including prevention,
17 control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-
18 361. The pilot projects shall:

19 (A) seek to reduce invasive aquatic vegetation, predators, and other competitors
20 which are major factors in the decline of native listed pelagic and anadromous species
21 that occupy the Sacramento and San Joaquin Rivers and their tributaries and the
22 Sacramento-San Joaquin Bay-Delta; and

23 (B) address how to remove, reduce, or control the effects of species including:
24 Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth
25 bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

26 (2) The Secretary of the Interior's efforts shall consist of the following phases:

27 (A) Phase 1. The Secretary of the Interior shall convene a panel of experts,
28 including experts recommended by the State of California, to:

29 (i) Identify the non-native species having the greatest impact on the viability
30 of native pelagic and anadromous native listed species; and

31 (ii) Identify the non-native species for which actions to reduce or control the
32 population is determined to be possible; and

33 (iii) Design a study to reduce the non-native species identified in clauses (i) and
34 (ii) and prepare a cost estimate to implement this study.

35 (B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative
36 reduction methods, including either direct predator removal or alteration of channel
37 conditions, or some combination thereof, through pilot projects at multiple sites in
38 addition to the projects on the Stanislaus River pursuant to Section 204, including
39 known hotspots of predator aggregation or activity, such as:

40 (i) Clifton Court Forebay,

41 (ii) Central Valley Project intakes,

- (iii) Head of Old River,
- (iv) Georgiana Slough,
- (v) Old and Middle Rivers,
- (vi) Franks Tract,
- (vii) Paintersville Bridge,
- (viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,
- (ix) Human-made submerged structures, and
- (x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall—

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The Assistant Administrator shall ensure that the independent science panel—

(A) Includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries;

(B) Considers and gives equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Completes the review by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall

Chinook.

(A) In carrying out the assessment under this Paragraph, any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT RELIEF

SEC. 301. FINDINGS.

Congress finds that—

(1) Based on the congressional findings in Sec. 2 of this Act, it is appropriate and necessary for federal agencies to exercise the maximum amount of flexibility provided to them under the applicable laws and regulations to maximize delivery of water supplies while providing the same or better levels of protection for species.

SEC. 302. DEFINITIONS.

In this title:

(1) **CENTRAL VALLEY PROJECT.**—The term “Central Valley Project” has the meaning given the term in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4707).

(2) **KLAMATH PROJECT.**—The term “Klamath Project” means the Bureau of Reclamation project in the States of California and Oregon, as authorized under the Act of June 17, 1902 (32 Stat. 388, chapter 1093).

(3) **RECLAMATION PROJECT.**—The term “Reclamation Project” means a project constructed pursuant to the authorities of the reclamation laws and whose facilities are

wholly or partially located in the State.

(4) SECRETARIES.—The term “Secretaries” means—

(A) the Administrator of the Environmental Protection Agency;

(B) the Secretary of Agriculture;

(C) the Secretary of Commerce; and

(D) the Secretary of the Interior.

(5) STATE WATER PROJECT.—The term “State Water Project” means the water project described by California Water Code section 11550 et seq., and operated by the California Department of Water Resources.

SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT.

(a) Water Supplies.—

(1) IN GENERAL.—In response to a declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, the Secretaries shall provide the maximum quantity of water supplies practicable to Central Valley Project agricultural, municipal and industrial, and refuge service and repayment contractors, State Water Project contractors, and any other tribe, locality or municipality in the State, by approving, consistent with applicable laws (including regulations), projects and operations to provide additional water supplies as quickly as practicable based on available information to address the emergency conditions.

(2) APPLICATION.—Paragraph (1) applies to projects or operations involving the Klamath Project if the projects or operations would benefit Federal water contractors in the State.

(b) Administration.—In carrying out subsection (a), the Secretaries shall, consistent with applicable laws (including regulations)—

(1) issue all necessary permit decisions under the authority of the Secretaries not later than 30 days after the date on which the Secretaries receive a completed application from the State to place and use temporary barriers or operable gates in Delta channels to improve water quantity and quality for the State Water Project and the Central Valley Project south of Delta water contractors and other water users, on the condition that the barriers or operable gates—

(A) provide benefits for species protection and in-Delta water user water quality; and

(B) are designed so that formal consultations under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536) are not necessary;

(2) require the Director of the United States Fish and Wildlife Service and the Commissioner of Reclamation—

(A) to complete, not later than 30 days after the date on which the Director or the Commissioner receives a complete written request for water transfer associated with voluntarily fallowing nonpermanent crops in the State, all requirements under the

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1 National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the
2 Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) necessary to make final
3 permit decisions on the request; and

4 (B) to grant any water transfer request described in subparagraph (A) to maximize
5 the quantity of water supplies available for nonhabitat uses, on the condition that the
6 following and associated water transfer are in compliance with applicable Federal laws
7 (including regulations);

8 (3) adopt a 1:1 inflow to export ratio for the increment of increased flow of the San
9 Joaquin River, as measured as a 3-day running average at Vernalis during the period
10 beginning on April 1, and ending on May 31, resulting from voluntary transfers and
11 exchanges of water supplies, on the condition that a proposed transfer or exchange under
12 this paragraph may only proceed if the Secretary of the Interior determines that the
13 environmental effects of the proposed transfer or exchange are consistent with effects
14 permissible under applicable law (including regulations), and Delta conditions are suitable
15 to allow movement of the transfer water through the Delta consistent with Reclamation's
16 permitted rights; and

17 (4) Provide additional priority for eligible WaterSMART projects that address drought
18 conditions including projects that—

19 (A) provide emergency drinking and municipal water supplies to localities in a
20 quantity necessary to meet minimum public health and safety needs;

21 (B) prevent the loss of permanent crops;

22 (C) minimize economic losses resulting from drought conditions; or

23 (D) provide innovative water conservation tools and technology for agriculture and
24 urban water use that can have immediate water supply benefits.

25 (c) Accelerated Project Decision and Elevation.—

26 (1) IN GENERAL.— On request by the Governor of the State, the heads of Federal agencies
27 shall use the expedited procedures under this subsection to make final decisions relating to a
28 Federal project or operation if the project's or operation's purpose is to provide relief for
29 emergency drought conditions pursuant to subsections (a) and (b).

30 (2) REQUEST FOR RESOLUTION.—

31 (A) IN GENERAL.—On request by the Governor of the State, the head of a Federal
32 agency referenced in paragraph (1), or the head of another Federal agency responsible
33 for carrying out a review of a project, as applicable, the Secretary of the Interior shall
34 convene a final project decision meeting with the heads of all relevant Federal agencies
35 to decide whether to approve a project to provide relief for emergency drought
36 conditions.

37 (B) MEETING.—The Secretary of the Interior shall convene a meeting requested
38 under subparagraph (A) not later than 7 days after the date on which the meeting
39 request is received.

40 (3) NOTIFICATION.—On receipt of a request for a meeting under paragraph (2), the
41 Secretary of the Interior shall notify the heads of all relevant Federal agencies of the

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request, including information on the project to be reviewed and the date of the meeting.

(4) **DECISION.**—Not later than 10 days after the date on which a meeting is requested under paragraph (2), the head of the relevant Federal agency shall issue a final decision on the project.

(5) **MEETING CONVENED BY SECRETARY.**—The Secretary of the Interior may convene a final project decision meeting under this subsection at any time, at the discretion of the Secretary, regardless of whether a meeting is requested under paragraph (2).

(d) **Application.**—To the extent that a Federal agency, other than the agencies headed by the Secretaries, has a role in approving projects described in subsections (a) and (b), this section shall apply to those Federal agencies.

(e) **Limitation.**—Nothing in this section authorizes the heads of applicable Federal agencies to approve projects—

(1) that would otherwise require congressional authorization; or

(2) without following procedures required by applicable law.

SEC. 304. OPERATION OF CROSS-CHANNEL GATES.

(a) **In General.**—The Secretary of Commerce and the Secretary of the Interior shall jointly—

(1) authorize and implement activities to ensure that the Delta Cross Channel Gates remain open to the maximum extent practicable using findings from the United States Geological Survey on diurnal behavior of juvenal salmonids, timed to maximize the peak flood tide period and provide water supply and water quality benefits for the duration of the drought emergency declaration of the State, consistent with operational criteria and monitoring criteria developed pursuant to the Order Approving a Temporary Urgency Change in License and Permit Terms in Response to Drought Conditions of the California State Water Resources Control Board, effective January 31, 2014 (or a successor order);

(2) with respect to the operation of the Delta Cross Channel Gates described in paragraph (1), collect data on the impact of that operation on—

(A) species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

(B) water quality; and

(C) water supply;

(3) consistent with knowledge gained from activities carried out during 2014, collaborate with the California Department of Water Resources to install a deflection barrier at Georgiana Slough in coordination with Delta Cross Channel Gate diurnal operations to protect migrating salmonids;

(4) evaluate the combined salmonid survival in light of activities carried out pursuant to paragraphs (1) through (3) in deciding how to operate the Delta Cross Channel gates to enhance salmonid survival and water supply benefits; and

(5) not later than May 15, 2015, submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Natural Resources of the House of

Representatives a written report on the extent to which the gates are able to remain open.

(b) Recommendations.—After assessing the information collected under subsection (a), the Secretary [of the Interior] shall recommend revisions to the operation of the Delta Cross-Channel Gates, to the Central Valley Project, and to the State Water Project, including, if appropriate, any reasonable and prudent alternatives contained in the biological opinion issued by the National Marine Fisheries Service on June 4, 2009, that are likely to produce fishery, water quality, and water supply benefits.

SEC. 305. FLEXIBILITY FOR EXPORT/INFLOW RATIO.

In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, consistent with the Central Valley Project and State Water Project Drought Operations Plan and Operational Forecast, the Commissioner of the Bureau of Reclamation shall continue to vary the averaging period of the Delta Export/Inflow ratio pursuant to the California State Water Resources Control Board decision D1641, approved in the March Temporary Urgency Change Order—

(1) to operate to a 35 percent Export/Inflow ratio with a 3 day averaging period on the rising limb of a Delta inflow hydrograph; and

(2) to operate to a 14 day averaging period on the falling limb of the Delta inflow hydrograph.

SEC. 306. EMERGENCY ENVIRONMENTAL REVIEWS.

To minimize the time spent carrying out environmental reviews and to deliver water quickly that is needed to address emergency drought conditions in the State during the duration of an emergency drought declaration, the head of each applicable Federal agency shall, in carrying out this Act, consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations), to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) during the emergency.

SEC. 307. PRIORITIZING STATE REVOLVING FUNDS DURING DROUGHTS.

(a) In General.—This section shall apply for each of the fiscal years during which an emergency drought declaration of the State is in effect.

(b) The Administrator of the Environmental Protection Agency, in implementing the processes and programs under the State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12), shall, for those projects that are eligible to receive assistance under section 603 of the Federal Water Pollution Control Act (33 U.S.C. 1383) or section 1452(a)(2) of the Safe Drinking Water Act (42 U.S.C. 300j–12(a)(2)),

(1) issue a determination of waivers within 30 days of the conclusion of the informal public comment period pursuant to section 436(c) of title IV of division G of Public Law 113–76; and

(2) authorize, at the request of the State, 40-year financing for assistance under section 603(d)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)(2)) or section 1452(f)(2) of the Safe Drinking Water Act (42 U.S.C. 300j–12(f)(2)).

(c) Effect of Section.—Nothing in this section authorizes the Administrator of the Environmental Protection Agency to modify any funding allocation, funding criteria, or other requirement relating to State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) for any other State.

SEC. 308. INCREASED FLEXIBILITY FOR REGULAR PROJECT OPERATIONS.

The Secretaries shall, consistent with applicable laws (including regulations)—

(1) to the maximum extent practicable, based on the availability of water and without causing land subsidence or violating water quality standards—

(A) help meet the contract water supply needs of Central Valley Project refuges through the improvement or installation of water conservation measures, water conveyance facilities, and wells to use groundwater resources, on the condition that those activities may only be accomplished by using funding made available under the Water Assistance Program or the WaterSMART program of the Department of the Interior; and

(B) make available to Central Valley Project contractors a quantity of Central Valley Project surface water obtained from the activities carried out under subparagraph (A);

(2) contingent upon funding, in coordination with the Secretary of Agriculture, enter into an agreement with the National Academy of Sciences to conduct a comprehensive study, to be completed not later than 1 year after the date of enactment of this Act, on the effectiveness and environmental impacts of saltcedar biological control efforts on increasing water supplies and improving riparian habitats of the Colorado River and its principal tributaries, in the State and elsewhere;

(3) in coordination with the California Department of Water Resources and the California Department of Fish and Wildlife, implement offsite upstream projects in the Delta and upstream Sacramento River and San Joaquin basins that offset the effects on species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) due to activities carried out pursuant this Act, [as determined by the Secretaries];

(4) manage reverse flow in the Old and Middle Rivers as prescribed by the biological opinions issued by the United States Fish and Wildlife Service on December 15, 2008, for Delta smelt and by the National Marine Fisheries Service on June 4, 2009, for salmonids, or any successor biological opinions, to minimize water supply reductions for the Central Valley Project and the State Project, and issue guidance no later than December 31, 2015 directing their employees to take all steps necessary to manage flow in accordance with this paragraph;

(5) as soon as practicable after the date of enactment of this Act and pursuant to existing

authority available to the Secretary of the Interior, participate in, issue grants, or otherwise provide funding for pilot projects to increase water in reservoirs in regional river basins experiencing extreme, exceptional, or sustained drought that have a direct impact on the water supply of the State, including the Colorado River Basin, on the condition that any participation, grant, or funding by the Secretary of the Interior with respect to the Upper Division shall be with or to the respective State; and

(6) use all available scientific tools to identify any changes to real-time operations of the Bureau of Reclamation, State, and local water projects that could result in the availability of additional water supplies.

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- (1) During the 2013-2014 water year, operations of the Central Valley Project and the State Water Project, the incidental take of adult Delta smelt was zero; of juvenile Delta smelt, 78 (7.7% of the incidental take limit); of winter run chinook, 339 (1.4% of the incidental take limit); of spring run chinook, zero; and of steelhead, 261 (8.7% of the incidental take limit).
- (2) The Central Valley Project and State Water Project exceeded a combined pumping capacity of -5,000 cubic feet per second over a 14-day average for brief periods after three storm events in February and March 2014, but did not cause substantially increased take of smelt or salmon.
- (3) Hydrological conditions in dry years, such as the 2013-2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- (4) The Secretaries should be allowed more flexibility to increase pumping levels without causing significant risk to the listed species or weakening other environmental protections.
- (5) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the 2014-2015 water year, and provide for the diversion of those supplies to the Central Valley Project and State Water Project so that farms, businesses, and homes in drought-stricken areas will have an opportunity to bolster their meager supplies when water is available.

(b) In general. Consistent with avoiding significant take of listed fish likely to result in exceeding the incidental take level in the biological opinions and other environmental protections under subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at -7500 cubic feet per second for 21 cumulative days after October 1, 2014, as described in subsection (c).

(c) Days of temporary operational flexibility. The temporary operational flexibility described in subsection (b) shall be authorized on days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet

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per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

(d) Compliance with incidental take authorization. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of temporary operational flexibility if they determine that otherwise project operations over the remainder of the water year would exceed the incidental take authorizations in the biological opinions.

(e) Other environmental protections.

(1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year;

(2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;

(3) This section shall not have any effect on the applicable requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of such applicable requirements may be relaxed during this time period to provide emergency water supply relief without exceeding the incidental take level;

(4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential negative impacts and actions necessary to mitigate any impacts of the temporary operational flexibility to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and

(5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements of this section.

(f) Technical adjustments to target period. If, before temporary operational flexibility has been implemented on 21 cumulative days, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative than -7500 cubic feet per second during days of temporary operational flexibility as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) Emergency consultation; effect on running averages.

1) If necessary to implement the provisions of this section, the Commissioner shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of temporary operational flexibility—

A) no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e); and

B) including, as appropriate, adjustments to ensure that the actual flow rates during the periods of temporary operational flexibility do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.

2) Following the conclusion of the 21 days of temporary operational flexibility, the Commissioner shall not need to reinitiate consultation on the biological opinions if the effects of operations under this section remain within the incidental take authorizations.

(h) Level of detail required for analysis. In articulating the determinations required under this section, the Secretaries shall fully satisfy the requirements herein but shall not be expected to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely decision-making in response to changing conditions in the Delta.

(i) Duration. This section shall expire on September 30, 2015.

SEC. 310. EXPEDITING WATER TRANSFERS.

(a) In General.—Section 3405(a) of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4709(a)) is amended—

(1) by redesignating paragraphs (1) through (3) as paragraphs (4) through (6), respectively;

(2) in the matter preceding paragraph (4) (as so designated)—

(A) in the first sentence, by striking “In order to” and inserting the following:

“(1) IN GENERAL.—In order to”; and

(B) in the second sentence, by striking “Except as provided herein” and inserting the following:

“(3) TERMS.—Except as otherwise provided in this section”; and

(3) by inserting before paragraph (3) (as so designated) the following:

“(2) EXPEDITED TRANSFER OF WATER.—The Secretary shall take all necessary actions to facilitate and expedite transfers of Central Valley Project water in accordance with—

“(A) this Act;

“(B) any other applicable provision of the reclamation laws; and

“(C) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).”;

(4) in paragraph (4) (as so designated)—

(A) in subparagraph (A), by striking “to combination” and inserting “or combination”; and

(B) by striking “3405(a)(2) of this title” each place it appears and inserting “(5)”; and

(5) in paragraph (5) (as so designated), by adding at the end the following:

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“(E) The contracting district from which the water is coming, the agency, or the Secretary shall determine if a written transfer proposal is complete within 45 days after the date of submission of the proposal. If the contracting district or agency or the Secretary determines that the proposal is incomplete, the district or agency or the Secretary shall state with specificity what must be added to or revised for the proposal to be complete.”; and

(6) in paragraph (6) (as so designated), by striking “3405(a)(1)(A)-(C), (E), (G), (H), (I), (L), and (M) of this title” and inserting “(A) through (C), (E), (G), (H), (I), (L), and (M) of paragraph (4)”.

(b) Conforming Amendments.—The Central Valley Project Improvement Act (Public Law 102–575) is amended—

(1) in section 3407(c)(1) (106 Stat. 4726), by striking “3405(a)(1)(C)” and inserting “3405(a)(4)(C)”;

(2) in section 3408(i)(1) (106 Stat. 4729), by striking “3405(a)(1) (A) and (J) of this title” and inserting “subparagraphs (A) and (J) of section 3405(a)(4)”

SEC. 311. WARREN ACT CONTRACTS.

[To be supplied.]

SEC. 312. ADDITIONAL WARREN ACT CONTRACTS.

[To be supplied.]

TITLE IV—INCREASING WATER STORAGE

SEC. 401. FINDINGS.

Congress finds that—

(1) the record drought conditions being experienced in the State as of the date of enactment of this Act are—

(A) expected to recur in the future; and

(B) likely to do so with increasing frequency;

(2) water storage is an indispensable and integral part of any solution to address the long-term water challenges of the State;

(3) Congress authorized relevant feasibility studies for 4 water storage projects in the State, including projects for—

(A) enlargement of Shasta Dam in Shasta County under section 2(a) of Public Law 96–375 (94 Stat. 1506), as reaffirmed under section 103(d)(1)(A)(i)(I) of Public Law 108–361 (118 Stat. 1684);

(B) enlargement of Los Vaqueros Reservoir in Contra Costa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section

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103(d)(1)(A)(i)(II) of Public Law 108–361 (118 Stat. 1684);

(C) construction of North-of-Delta Offstream Storage (Sites Reservoir) in Colusa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(I) of Public Law 108–361 (118 Stat. 1684); and

(D) construction of the Upper San Joaquin River storage (Temperance Flat) in Fresno and Madera Counties under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(II) of Public Law 108–361 (118 Stat. 1684);

(4)(A) as of the date of enactment of this Act, it has been more than 10 years since the authorization of the feasibility studies referred to in paragraph (3); but

(B) complete and final feasibility studies have not been prepared for any of those water storage projects;

(5) as of August 2014, only 2 of the 4 projects referred to in paragraph (3) have completed draft feasibility studies;

(6) the slow pace of work on completion of the feasibility studies for those 4 water storage projects is—

(A) unjustified; and

(B) of deep concern; and

(7) there is significant public interest in, and urgency with respect to, completing all feasibility studies and environmental reviews for the water storage projects referred to in paragraph (3), given the critical need for that infrastructure to address the water challenges of the State.

SEC. 402. CALFED STORAGE FEASIBILITY STUDIES.

(a) In General.—Notwithstanding subparagraph (B)(i) of section 103(d)(1) of Public Law 108–361 (118 Stat. 1684), the Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this title as the “Secretary”), shall complete a final feasibility study and any other applicable environmental review documents for the project described in—

(1) subparagraph (A)(i)(I) of that section by not later than December 31, 2014;

(2) subparagraph (A)(ii)(II) of that section by not later than July 31, 2015.

(b) Environmental Reviews.—In carrying out subsection (a), the Secretary—

(1) shall ensure that—

(A) all applicable reviews, including reviews required under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), are completed as expeditiously as practicable; and

(B) the shortest applicable process under that Act is used, including in the completion of—

(i) feasibility studies;

(ii) draft environmental impact statements; and

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(iii) final environmental impact statements; and

(2) shall not be required to complete a draft or final environmental impact statement if the Commissioner of Reclamation determines, and the Secretary concurs, that the project fails to meet applicable Federal cost-benefit requirements or standards.

(c) Accountability.—

(1) If the Bureau of Reclamation determines that an environmental review document for the water storage projects referenced in of Section 103(d)(1) of P.L. 108-361 will not be completed according to the schedule specified in subsection (a), the Bureau shall notify the Senate Committee on Energy and Natural Resources, the Senate Appropriations Subcommittee on Energy and Water Development, and the House of Representatives Transportation and Infrastructure Committee within 14 days of the determination. The notification shall include:

(A) An explanation of the delay;

(B) The anticipated length of the delay and the revised completion date;

(C) The steps that the Bureau will take to mitigate the delay, including, but not limited to, a request to reprogram existing funds appropriated to the Bureau to meet the revised completion deadline.

(b) The Bureau of Reclamation shall carry out the procedures in subsection (a) for each subsequent delay beyond the revised completion deadline.

SEC. 403. WATER STORAGE PROJECT CONSTRUCTION.

(a) The Secretary, acting through the Commissioner of the Bureau of Reclamation, may partner or enter into an agreement on the water storage projects identified in section 103(d)(1) of the Water Supply Reliability and Environmental Improvement Act (Public Law 108-361) (and Acts supplemental and amendatory to the Act) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments within the applicable hydrologic region, to advance those projects.

(b) [PLACEHOLDER FOR AUTHORIZATION ISSUE]

SEC. 404. OTHER STORAGE FEASIBILITY STUDIES.

(a) Definition of Qualifying Project.—In this section, the term “qualifying project” means new surface water storage projects constructed on lands administered by the Department of the Interior in a State in which the Bureau of Reclamation has jurisdiction, exclusive of any easement, right-of-way, lease, or any private holding.

(b) Lead Agency.—

(1) QUALIFYING PROJECTS WITHIN JURISDICTION OF BUREAU OF RECLAMATION.—The Bureau of Reclamation shall serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct qualifying projects within the jurisdiction of the Bureau.

(2) QUALIFYING PROJECTS OUTSIDE JURISDICTION OF BUREAU OF RECLAMATION.—If the site of a qualifying project is not located in a State in which the Bureau of Reclamation has

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jurisdiction, the Secretary shall, by not later than 45 days after the date of receipt of an application for the qualifying project—

(A) designate an alternate agency within the Department of the Interior to serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct the qualifying project; or

(B) in consultation with the heads of other Federal departments and agencies, identify the appropriate lead agency for the qualifying project.

(c) Cooperating Agencies.—

(1) FEDERAL DEPARTMENTS AND AGENCIES.—The lead agency designated under paragraph (1) or (2) of subsection (b) shall—

(A) as soon as practicable after receipt of an application for a qualifying project, identify any Federal department or agency that may have jurisdiction over a review, permit, license, approval, or decision required for the qualifying project under applicable Federal laws (including regulations); and

(B) as soon as practicable after the date of identification under subparagraph (A)—

(i) notify each applicable department or agency of the identification; and

(ii) designate the department or agency as a cooperating agency, unless the department or agency—

(I) has no jurisdiction or authority with respect to the qualifying project;

(II) has no expertise or information relevant to the qualifying project or any review, permit, license, approval, or decision associated with the qualifying project; or

(III) does not intend—

(aa) to submit comments regarding the qualifying project; or

(bb) to conduct any review of the qualifying project or make any decision with respect to the qualifying project in a manner other than in cooperation with the Bureau of Reclamation.

(2) STATES.—A State in which a qualifying project is proposed to be carried out may elect, consistent with Federal and State law, to participate as a cooperating agency, if the lead agency designated for the proposed qualifying project under paragraph (1) or (2) of subsection (b) determines that the applicable agency of the State—

(A) has jurisdiction over the qualifying project under applicable Federal or State law;

(B) is required to conduct or issue a review of the qualifying project; and

(C) is required to make a determination regarding issuing a permit, license, or approval of the qualifying project.

(d) Duties of Lead Agency.—

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(1) IN GENERAL.—Not later than 30 days after the date of receipt of an application for approval of a qualifying project, the lead agency shall hold a meeting among the applicant, the lead agency, and all cooperating agencies to establish, with respect to the qualifying project, all applicable—

(A) requirements;

(B) review processes; and

(C) stakeholder responsibilities.

(2) SCHEDULE.—

(A) ESTABLISHMENT.—Not later than 30 days after the date of the meeting under paragraph (1), the lead agency, in consultation with the attendees of the meeting, shall establish a schedule for completion of the qualifying project, taking into consideration, among other relevant factors—

(i) the responsibilities of cooperating agencies under applicable laws and regulations;

(ii) the resources available to the cooperating agencies and non-Federal project stakeholders;

(iii) the overall size and complexity of the qualifying project;

(iv) the overall schedule for, and cost of, the qualifying project; and

(v) the sensitivity of the natural and historic resources that may be affected by the qualifying project.

(B) REQUIREMENTS.—On establishment of a schedule for a qualifying project under subparagraph (A), the lead and cooperating agencies shall—

(i) to the maximum extent practicable, adhere to the schedule; and

(ii) submit to the Committee on Environment and Public Works of the Senate and the Committee on Natural Resources of the House of Representatives on a semiannual basis a report describing any delays in the schedule, including a description of—

(I) the reasons for the delay;

(II) the actions that the lead and cooperating agencies will take to minimize the delay; and

(III) a revised schedule for the qualifying project, if applicable.

(e) Environmental Reviews.—

(1) SINGLE, UNIFIED ENVIRONMENTAL REVIEW DOCUMENT.—

(A) IN GENERAL.—The lead agency with respect to a qualifying project, in consultation with appropriate stakeholders and cooperating agencies, shall determine whether a single, unified environmental review document relating to the qualifying project is sufficient to comply with applicable Federal laws (including regulations), including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

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(B) ACTION ON DECLINATION.—If, after consultation under subparagraph (A), a lead agency determines not to adopt a single, unified environmental review document relating to a qualifying project—

(i) the lead agency shall—

(I) document the reasons for the determination; and

(II) submit to the Secretary a report describing those reasons; and

(ii) the Secretary may require the adoption of a single, unified document at the discretion of the Secretary, based on good cause.

(2) ENVIRONMENTAL ASSESSMENT.—Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental assessment is sufficient to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental assessment shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental assessment by not later than 180 days after the end of the period for public comments on the draft environmental assessment.

(3) ENVIRONMENTAL IMPACT STATEMENT.— Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental impact statement is required to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental impact statement shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental impact statement by not later than 1 year after the end of the period for public comments on the draft environmental impact statement.

(4) MODIFICATION OF SCHEDULE.—In carrying out paragraphs (2) and (3),

(A) the lead agency with respect to a qualifying project may modify the schedule of the qualifying project if:

(i) the Federal lead agency can demonstrate good cause, such as the need for additional time to comply with other statutory or regulatory requirements other than the National Environmental Policy Act of 1969, and the head of that agency submits to Congress a written determination describing the cause and reasons for the modification no less than 30 days before the original scheduled deadline; or

(ii) the Federal lead agency, the project sponsor, the joint lead agency (as applicable), and all participating and cooperating agencies agree to such modification.

(B) no modification pursuant to subparagraph (4)(A) shall postpone the issuance of a

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1 final environmental assessment by more than 1 year, or a final environmental impact
2 statement by more than 2 years, unless the conditions under (4)(A)(i) or (4)(A)(ii) are
3 met.

4 (C) If a modification occurs pursuant to this paragraph, the Federal lead agency shall
5 issue and adhere to the revised schedule unless the conditions under (4)(A)(i) or
6 (4)(A)(ii) are met.

7 (5) REQUIREMENTS.—On commencement of the environmental review process under this
8 subsection, the lead and cooperating agencies shall, as soon as practicable—

9 (A) make available to all stakeholders of the qualifying project information
10 regarding—

11 (i) the environmental and socioeconomic resources located within the area of
12 the qualifying project; and

13 (ii) the general locations of the alternatives under consideration; and

14 (B) identify any issues of concern regarding the potential environmental or
15 socioeconomic effects of the qualifying project, including any issues that could
16 substantially delay or prevent an agency from granting a permit or other approval that
17 is needed for a study relating to the qualifying project.

18 (f) Concurrent Review Actions.—

19 (1) IN GENERAL.—Any review, analysis, permit, license, approval, or decision regarding a
20 qualifying project made by a Federal, State, or local government agency shall be—

21 (A) conducted, to the maximum extent practicable, concurrently with any other
22 applicable government agency; and

23 (B) incorporated in the schedule for the qualifying project under subsection (d)(2).

24 (2) REQUIREMENT.—The lead and cooperating agencies for a qualifying project shall
25 formulate and implement administrative, policy, and procedural mechanisms to enable
26 adherence to the schedule for the qualifying project in a timely, coordinated, and
27 environmentally responsible manner.

28 (3) GUIDANCE.—The Secretary shall issue guidance regarding the use of programmatic
29 approaches to carry out the environmental review process that, to the maximum extent
30 practicable—

31 (A) eliminates repetitive discussions of the same issues;

32 (B) focuses on the actual issues ripe for analysis at each level of review;

33 (C) establishes a formal process for coordinating with participating and cooperating
34 agencies, including the establishment of a list of all data required to carry out an
35 environmental review process; and

36 (D) complies with the National Environmental Policy Act of 1969 (42 U.S.C. 4321
37 et seq.) and all other applicable laws and regulations.

38 (g) Administrative Record and Data Management.—

39 (1) IN GENERAL.—The lead agency shall—

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(A) be responsible for compiling the administrative record of the information used as the basis for decisions relating to a qualifying project; and

(B) to the maximum extent practicable and consistent with Federal law, make available all data regarding the qualifying project in a format that is accessible via electronic means for project stakeholders, cooperating agencies, and the public.

(2) REPORTS.—Not less frequently than once each year, the lead agency shall submit a progress report regarding a qualifying project to project stakeholders, cooperating agencies, the Committee on Environment and Public Works of the Senate, and the Committee on Natural Resources of the House of Representatives.

(h) Participation by Non-Federal Project Sponsors.—

(1) APPLICATION TO SERVE AS COOPERATING AGENCY.—A non-Federal sponsor of a qualifying project may submit to the lead Secretary an application to serve as a cooperating agency of the qualifying project for purposes of preparing any necessary documents relating to the qualifying project, including an environmental review, if—

(A) the non-Federal sponsor is a public agency as defined under the laws of the state in which the agency is located;

(B) the non-Federal sponsor agrees to adhere to—

(i) all required Federal laws (including regulations) in carrying out the qualifying project; and

(ii) all decisions regarding the qualifying project that have been agreed on by other stakeholders of the qualifying project; and

(C) the applicable lead agency certifies that participation by the non-Federal sponsor will not inappropriately bias the qualifying project in favor of the non-Federal sponsor.

(2) FUNDS.—Any funds contributed by a non-Federal sponsor to a qualifying project—

(A) may be accepted to maintain or accelerate progress on the qualifying project, subject to the condition that the Secretary shall—

(i) review the use of the funds; and

(ii) certify in writing that the funds—

(I) are used solely to complete applicable environmental reviews; and

(II) do not unduly influence any permit or approval decision regarding the qualifying project; and

(B) shall be applied toward the non-Federal cost-share of the qualifying project.

(i) Applicability to Calfed Storage Studies.—For any feasibility study referred to in section 401(3), this section shall apply to all activities to be carried out under the study on or after the date of enactment of this Act that would lead to congressional authorization of an applicable project for construction.

SEC. 405. DAM SAFETY PROJECTS WITH INCREASED STORAGE COMPONENT.

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(a) Additional Project Benefits.—The Reclamation Safety of Dams Act of 1978 is amended—

(1) in section 3 (43 U.S.C. 507), by striking “Construction” and inserting “Except as provided in section 5B, construction”; and

(2) by inserting after section 5A (43 U.S.C. 509a) the following:

“SEC. 5B. ADDITIONAL PROJECT BENEFITS.

“(a) In General.—Notwithstanding section 3, if the Secretary, in the judgment of the Secretary, makes a determination described in subsection (b), the Secretary is authorized to develop any additional project benefit—

“(1) through the construction of new or supplementary works on a project in conjunction with the activities carried out by the Secretary pursuant to section 2; and

“(2) subject to the conditions described in the feasibility study relating to the project.

“(b) Description of Determination.—A determination referred to in subsection (a) is a determination by the Secretary that—

“(1) an additional project benefit, including but not limited to additional conservation storage capacity, is—

“(A) necessary; and

“(B) in the interests of the United States; and

“(2) the project [benefit] proposed to be carried out is—

“(A) feasible; and

“(B) not inconsistent with the purposes of this Act.

“(c) Requirements.—The costs associated with developing an additional project benefit under this section shall be—

“(1) allocated to the authorized purposes of the structure, provided that agreement on project benefits and allocable costs is reached among state and federal funding agencies; and

“(2) repaid in accordance with all applicable provisions of Federal reclamation law (the Act of June 17, 1902 (32 Stat. 388, chapter 1093), and Acts supplemental to and amendatory of that Act (43 U.S.C. 371 et seq.).”.

(b) San Luis Reservoir Expansion.—Section 103(f)(1)(A) of Public Law 108–361 (118 Stat. 1694) is amended—

(1) by striking “Funds” and inserting the following:

“(i) IN GENERAL.—Funds”; and

(2) by adding at the end the following:

“(ii) ENVIRONMENTAL REVIEWS AND FEASIBILITY STUDY.—The Commissioner of Reclamation shall submit [to Congress]—

“(I) an expansion draft environmental impact statement and feasibility

study relating to the San Luis Reservoir by not later than April 1, 2016; and
“(II) a final environmental impact statement relating to the San Luis
Reservoir by not later than December 31, 2016.”.

SEC. 406. UPDATING WATER OPERATIONS MANUALS FOR NON-FEDERAL PROJECTS.

(a) Definitions.—In this section:

(1) NON-FEDERAL PROJECT.—

(A) IN GENERAL.—The term “non-Federal project” means a non-Federal reservoir project operated for flood control in accordance with rules prescribed by the Secretary pursuant to section 7 of the Act of December 22, 1944 (commonly known as the “Flood Control Act of 1944”) (58 Stat. 890, chapter 665).

(B) EXCLUSION.—The term “non-Federal project” does not include any dam or reservoir owned by—

(i) the Bureau of Reclamation; or

(ii) the Corps of Engineers.

(2) OWNER.—The term “owner” with respect to a non-Federal project, does not include—

(A) the Secretary;

(B) the Secretary of the Interior; or

(C) the head of any other Federal department or agency, notwithstanding any Federal monetary contribution made toward the construction cost of the relevant non-Federal project, if the contribution is predicated a on flood control or other specific benefit.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Army.

(b) Review by Secretary.—

(1) IN GENERAL.—Not later than 1 year after the date of receipt of a request from the owner of a non-Federal project, the Secretary, in consultation with the owner, shall review the water control manual and flood control rule curves and any operational or structural modifications proposed by the owner, including the use of improved weather forecasting and run-off forecasting methods, to enhance the existing purposes of the non-Federal project.

(2) REPORT.—Not later than 90 days after the date of completion of a review under paragraph (1), the Secretary shall submit to the owner of the applicable non-Federal project a report describing the results of the review.

(3) PRIORITY.—In carrying out of this subsection, the Secretary shall give priority to review and revision of water control manuals and flood control rule curves for any non-Federal project—

(A) that is located in a State in which a drought emergency has been declared during the 1-year period ending on the date of review by the Secretary;

(B) the owner of which has submitted to the Secretary a formal request to review or revise the operations manual or rule curves to accommodate new watershed data or proposed project modifications or operational changes;

(C) the water control manual and hydrometeorological information establishing the flood control rule curves of which have not been revised during the 20-year period ending on the date of review by the Secretary;

(D) with respect to which a completed probable maximum flood analysis or other data indicates that revisions of the project control manual or rule curves are likely to enhance water supply benefits and flood control operations; and

(E) modifications or operational changes proposed by the owner of which are likely to enhance water supply benefits and flood control operations.

(4) NON-FEDERAL CONTRIBUTIONS.—The Secretary may accept non-Federal funds for all or a portion of the cost of carrying out a review or revision of water control manuals and rule curves for non-Federal projects under this subsection.

SEC. 407. CENTRAL VALLEY PROJECT.

(a) Cooperative Agreements.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, to determine the feasibility of an agreement for long-term use of an existing or expanded non-Federal storage or conveyance facility to augment Federal water supply, ecosystem, and operational flexibility benefits, the Secretary shall offer to enter into cooperative agreements with non-Federal entities to provide replacement water supplies for drought relief for—

(A) contractors of the Central Valley Project (as defined in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706));

(B) units of the National Wildlife Refuge System;

(C) State wildlife areas; and

(D) private wetland areas.

(2) REQUIREMENTS.—A cooperative agreement under this subsection shall—

(A) include the purchase of storage capacity in non-Federal facilities from willing sellers; and

(B) provide reimbursement for the temporary use of available capacity in existing above-ground, off-stream storage and associated conveyance facilities owned by local water agencies.

(b) Report.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Chief of the National Wildlife Refuge System and contractors of the Central Valley Project a report describing the feasibility of the agreement for long-term use described in subsection (a)(1).

TITLE V—WATER RIGHTS PROTECTIONS

SEC. 501. PROTECTIONS FOR STATE WATER PROJECT CONTRACTORS.

If, as a result of the application of this Act, the California Department of Fish and Wildlife:

(a) revokes the consistency determination pursuant to California Fish and Game Code section 2080.1;

(b) amends or issues a new consistency determination pursuant to California Fish and Game Code section 2080.1 in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion; or

(c) requires take authorization under section 2081 for operation of the State Water Project in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion,

the water supply benefits of such action by the California Department of Fish and Wildlife accruing to the Central Valley Project, if any, shall be shared equally with the State Water Project.

SEC. 502. AREA OF ORIGIN PROTECTIONS.

(a) The Secretary of the Interior (Secretary) is directed in the operation of the Central Valley Project (CVP) to adhere to California's water rights laws governing water rights priorities by honoring water rights senior to those held by the United States for operation of the CVP, regardless of the source of priority, including any appropriative water rights initiated prior to December 19, 1914, as well as water rights and other priorities perfected or to be perfected pursuant to California Water Code Part 2 of Division 2. Article 1.7 (commencing with section 1215 of Chapter 1 of Part 2 of Division 2, Sections 10505, 10505.5, 11128, 11460, 11461, 11462 and 11463, and Sections 12200 to 12220, inclusive).

(b) Any action that requires that diversions be bypassed or that involves the release of water from any CVP water storage facility taken by the Secretary or the Secretary of the Department of Commerce pursuant to Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531, et seq.) shall be applied in a manner that is consistent with water rights priorities established by California law.

SEC. 503. NO REDIRECTED ADVERSE IMPACTS.

The Secretary shall ensure that, except as otherwise provided for in a water service or repayment contract, actions taken in compliance with legal obligations imposed pursuant to or as a result of this Act, including, but not limited to, such actions under the Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.) and other federal laws, shall not cause redirected adverse water supply or fiscal impacts to those within the Sacramento River Watershed or the State Water Project.

SEC. 504. EFFECT ON STATE LAWS.

Nothing in this Act preempts any State law in effect on the date of enactment of this Act, including area of origin and other water rights protections.

TITLE VI—MISCELLANEOUS

SEC. 601. AUTHORIZED SERVICE AREA.

(a) In General.—The authorized service area of the Central Valley Project authorized under the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) shall include the area within the boundaries of the Kettleman City Community Services District, California, as in existence on the date of enactment of this Act.

(b) Long-term Contract.—

(1) IN GENERAL.—Notwithstanding the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) and subject to paragraph (2), the Secretary of the Interior, in accordance with the reclamation laws, shall enter into a long-term contract with the Kettleman City Community Services District, California, under terms and conditions mutually agreeable to the parties, for the delivery of up to 900 acre-feet of Central Valley Project water for municipal and industrial use.

(2) LIMITATION.—Central Valley Project water deliveries authorized under the contract entered into under paragraph (1) shall be limited to the minimal quantity necessary to meet the immediate needs of the Kettleman City Community Services District, California, in the event that local supplies or State Water Project allocations are insufficient to meet those needs.

(c) Permit.—The Secretary shall apply for a permit with the State for a joint place of use [for water deliveries authorized under the contract entered into under subsection (b)? with respect to the expanded service area under subsection (a)?], consistent with State law.

(d) Additional Costs.—If any additional infrastructure, water treatment, or related costs are needed to implement this section, those costs shall be the responsibility of the non-Federal entity.

SEC. 602. RESCHEDULED WATER.

(a) In General.—In connection with operations of the Central Valley Project, California, if the San Luis Reservoir does not fill by the last day of February of any year, the Secretary of the Interior shall permit any entity with an agricultural water service or repayment contract for the delivery of water from the Delta Division or the San Luis Unit to reschedule into the immediately following contract year (March 1 through the last day of February) any unused Central Valley Project water previously allocated for irrigation purposes.

(b) Apportionment.—If water remaining in Federal storage in San Luis Reservoir on the last day of February of any year is insufficient to meet all rescheduling requests under subsection (a), the Secretary of the Interior shall, based on contract quantity, apportion among all contractors that request to reschedule water all water remaining in San Luis Reservoir on the last day of

February of the applicable year.

(c) Availability of Additional Water.—The Secretary shall make all reasonable efforts to make available additional rescheduled water, if the efforts do not interfere with the Central Valley Project operations in the contract year for which Central Valley Project water has been rescheduled.

SEC. 603. FISHERIES DISASTER DECLARATION.

[TO BE SUPPLIED.]

SEC. 604. OVERSIGHT BOARD FOR RESTORATION FUND.

(a) Report; Advisory Board.—Section 3407 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4726) is amended by adding at the end the following:

“(g) Report on Expenditure of Funds.—

“(1) IN GENERAL.—For each fiscal year, the Secretary, in consultation with the Advisory Board, shall submit to Congress a plan for the expenditure of all of the funds deposited into the Restoration Fund during the preceding fiscal year.

“(2) CONTENTS.—The plan shall include an analysis of the cost-effectiveness of each expenditure.

“(h) Advisory Board.—

“(1) ESTABLISHMENT.—There is established the Restoration Fund Advisory Board (referred to in this section as the ‘Advisory Board’), which shall be composed of 14 members appointed by the Secretary.

“(2) MEMBERSHIP.—

“(A) IN GENERAL.—The Secretary shall appoint members to the Advisory Board that represent the various Central Valley Project stakeholders, of whom—

“(i) 3 members shall be agricultural users of the Central Valley Project;

“(ii) 2 members shall be municipal and industrial users of the Central Valley Project;

“(iii) 3 members shall be power contractors of the Central Valley Project;

“(iv) 1 member shall be a representative of a federal wildlife refuge that contracts for Central Valley Project water supplies with the Bureau of Reclamation;

“(v) 1 member shall represent nongovernmental organizations involved in the protection and restoration of California fisheries;

“(vi) 1 member shall represent the commercial fishing industry;

“(vii) 1 member shall represent the recreational fishing industry; and

“(viii) 2 members shall be appointed at the discretion of the Secretary.

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1 “(B) OBSERVER.—The Secretary and the Secretary of Commerce may each
2 designate a representative to act as an observer of the Advisory Board.

3 “(C) CHAIRMAN.—The Secretary shall appoint 1 of the members described in
4 subparagraph (A) to serve as Chairman of the Advisory Board.

5 “(3) TERMS.—The term of each member of the Advisory Board shall be 4 years.

6 “(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made
7 not later than—

8 (A) the date that is 120 days after the date of enactment of this Act; or

9 (B) in the case of a vacancy on the Panel described in subsection (c)(2), the date
10 that is 120 days after the date on which the vacancy occurs.

11 “(5) Vacancies.—

12 (A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which
13 the original appointment was made and shall be subject to any conditions that applied
14 with respect to the original appointment.

15 (B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be
16 appointed for the unexpired term of the member replaced.

17 (C) EXPIRATION OF TERMS.—The term of any member shall not expire before the
18 date on which the successor of the member takes office.

19 “(6) Removal —A Member of the Panel may be removed from office by the Secretary of
20 the Interior.

21 “(7) Federal Advisory Committee Act. —The Panel shall not be subject to the
22 requirements of the Federal Advisory Committee Act.

23 “(8) DUTIES.—The duties of the Advisory Board are—

24 “(A) to meet not less frequently than semiannually to develop and make
25 recommendations to the Secretary regarding priorities and spending levels on projects
26 and programs carried out under this title;

27 “(B) to ensure that any advice given or recommendation made by the Advisory
28 Board reflects the independent judgment of the Advisory Board;

29 “(C) not later than December 31, 2015, and annually thereafter, to submit to the
30 Secretary and Congress the recommendations under subparagraph (A); and

31 “(D) not later than December 31, 2015, and biennially thereafter, to submit to
32 Congress a report that details the progress made in achieving the actions required
33 under section 3406.

34 “(9) ADMINISTRATION.—With the consent of the appropriate agency head, the Advisory
35 Board may use the facilities and services of any Federal agency.”

36 “(10) Cooperation and Assistance.—

(A) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(B) Space and Assistance.—The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 605. WATER OPERATIONS REVIEW PANEL.

(a) Establishment.—There is established a panel to be known as the “Water Operations Review Panel”.

(b) Membership.—

(1) COMPOSITION.—The Panel shall be composed of 5 members appointed by the Secretary of the Interior, in consultation with the Secretary of Commerce, of whom—

(A) 1 member shall be a former State elected official, who shall be the Chairperson of the Panel;

(B) 2 members shall be fisheries biologists, of whom—

(i) 1 member shall have expertise in Delta smelt; and

(ii) 1 member shall have expertise in salmonids; and

(C) 2 members shall have be engineers with substantial expertise in water operations.

(2) RECOMMENDATIONS. —The Secretary of the Interior shall consider the recommendations

(A) of the Governor of the State for the member appointed under subparagraph (1)(A);

(B) of the Director of the California Department of Water Resources for one of the members appointed under subparagraph (1)(C).

(3) PROHIBITION ON FEDERAL GOVERNMENT EMPLOYMENT.—For at least three years prior to appointment to the Panel, an individual appointed to the Panel under paragraph (1) shall not have been an employee of the Federal Government.

(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

(c) Term; Vacancies.—

(1) TERMS.—A member of the Panel shall be appointed for a term of 3 years, except that, with respect to the members first appointed under this section—

(A) the Chairperson shall be appointed for a term of 3 years;

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(B) of the members appointed under subsection (b)(1)(B)—

(i) 1 member shall be appointed for a term of 1 year; and

(iii) 1 member shall be appointed for a term of 2 years;

(C) of the members appointed under subsection (b)(1)(C)—

(i) 1 member shall be appointed for a term of 1 year; and

(ii) 1 member shall be appointed for a term of 2 years.

(2) VACANCIES.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(3) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

(d) Removal. —A Member of the Panel may be removed from office by the Secretary of the Interior.

(e) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act.

(f) Duties.

(1) Assessment and Report on Agencies' Operational Decisions under this Act.—

(A) IN GENERAL.—No later than November 30, 2015, and annually no later than November 30 thereafter, the Panel shall report an assessment of the agencies' operational decisions under this Act and recommendations for the prospective implementation of this Act to the following Congressional committees:

(i) Senate Committee on Environment and Public Works;

(ii) Senate Appropriations Subcommittee on Energy and Water Development;

(iii) House Natural Resources Committee; and

(iv) House Appropriations Subcommittee on Energy and Water Development.

(B) RETROSPECTIVE ASSESSMENT.—In making the retrospective assessment under paragraph (1), the Panel shall review and evaluate the Director of the Fish and Wildlife Service, Administrator of NOAA Fisheries, and Commissioner of Reclamation's —

(i) decisions in implementing this Act and other Federal laws applicable to the operations of the Central Valley Project and the State Water Project;

(ii) compliance with the Endangered Species Act in relation to operations of the Central Valley Project and the State Water Project; and

(iii) efforts to minimize water supply disruptions while complying with the Endangered Species Act and this Act.

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(C) PROSPECTIVE RECOMMENDATIONS.—The Panel shall make recommendations for prospective actions and potential actions warranting further study to better achieve the purposes of this Act and the Endangered Species Act as applied to the operations of the Central Valley Project and the State Water Project, including proposals—

(i) that in combination, both increase the survival of listed species and increase water supplies for the Central Valley Project and the State Water Project;

(ii) to increase the survival of listed fish species with little to no adverse effects on water supplies for the Central Valley Project and the State Water Project;

(iii) to increase such water supplies with little to no adverse effects on the survival of listed fish species; and

(iv) that respond to the annual Delta Science Program Independent Review Panel reports on the Long-term Operations Opinions.

(2) Submission of Comments and Proposals to Panel.—

(A) IN GENERAL.—In preparing the reports under subsections (a) and (b), the Panel shall invite comments and proposals from any interested person.

(B) SCHEDULE.—The Panel shall publish a schedule for receipt of comments and proposals under paragraph (1), together with instructions for how to submit the comments and proposals.

(f) Cooperation and Assistance. ---

(1) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of Commerce and the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(2) Space and Assistance --- The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

**SEC. 606. CONTINGENCY IN EVENT OF CONTINUING
RESOLUTION FOR FISCAL YEAR 2015.**

If a resolution providing continuing appropriations for the Fish and Wildlife Service or the National Marine Fisheries Service for fiscal year 2015 is enacted for any date on or after January 1, 2015, and the Secretaries have consulted with the California Department of Water Resources, Central Valley Project and State Water Project contractors, and the Interagency Ecological Program about any possible funding shortfall, the deadlines that apply to each respective Secretary, or agency, contained in sections _____ shall be extended by the number of days such resolution providing continuing appropriations applied to each agency.

From: Tom Birmingham
Sent: Tuesday, September 23, 2014 12:11 PM
To: 'Weaver, Kiel'; 'Nelson, Damon'
CC: 'Bernhardt, David L.'
Subject: Discussions with Watts and Interior

Kiel and Damon,

I understand that you will be discussing a draft bill this afternoon with John Watts and John Bezdek. David Bernhardt and I were involved in drafting numerous provisions of the document I believe you will see, but our having provided a drafting service does not necessarily indicate support. Please let David and me know if you have any questions, and I would appreciate an opportunity to speak with you before you agree to any specific language.

Tom

From: Watts, John (Feinstein)

Sent: Sunday, September 28, 2014 3:55 PM

To: 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'

CC: Yeung, Felix (Feinstein); Peterson, James (Feinstein)

Subject: Administration comments and technical assistance on draft language

Attachments: Feinstein_Legislation_Administration_Comments_09_28_14_5PM.docx

Can we discuss the attached comments and technical assistance between 12 and 2 eastern time tomorrow (between 9 and 11 pacific time)?

The agencies provided the below comments when they forwarded the attached document:

"Per our conversations, please find attached our latest round of comments and technical assistance to the draft you provided us last Friday. As you'll see, there a couple of sections we continue need more time to review. These are consistent with the phone conversations you have had with NOAA, DOI and CEQ the last couple of days. If you have questions on the feedback, don't hesitate to let us know.

In particular, we think we've made good progress on Sec 309. Note, we qualified some sections, "up to -7500" and "up to 21 days" to avoid concerns about litigation and keep any pumping in the world of what may actually be feasible. These qualifiers were added in good faith to get at your boss' stated goals while at the same time preserving some of the flexibility agencies think they need."

TECHNICAL ASSISTANCE – NOT ADMINISTRATION POLICY – 9/19 FEINSTEIN
DRAFT

Proposed Comments 9.28.2014 5:00 PM EST

Title: To provide drought relief in the State of California, and for other purposes.

General Comments

1. We continue to believe that priority should be placed on the development and implementation of a 2015 Drought Operations Plan that can implement changes in operations of the CVP and SWP to improve water supplies in a very serious drought year in a manner that is consistent with the ESA and other applicable law. See alternative to Sec. 303 at the end of the document previously provided.
2. As part of a 2015 Drought Plan, we recommend investing immediately in improvements in monitoring and data gathering in order to enable more precision in operations targeting reductions in negative fish impacts through “real time” operational triggers. To the extend authors of the bill can support this goal in the underlying bill text, we would appreciate it.
3. An unintended consequence of significant new legislative directives is that they pose serious risks of impeding the success of 2015 Drought Operations and by triggering another aggressive round of litigation that will impede flexibility. We appreciate efforts that have been made to reduce litigation risk; however, as noted below there are provisions that we believe invite potential litigation.
4. We recommend against permanent legislation on how the CVP and the ESA should relate, and in particular against locking into permanent law references to specific operating criteria that are tied to specific biological opinions that are highly likely to change over time as circumstances change. We recommend including expiration dates for those titles or sections that are drought-specific or operating criteria specific.
5. In many instances, we do not have the capacity to implement these new directives and continue with other pressing Administration priorities, like the top priority of 2015 drought operations, responding to the biological opinion remand and completing the BDCP. Enactment of these new requirements will significantly displace ongoing priorities.
6. We have questions about some of the findings that we have been unable to confirm at this time due to uncertainty surrounding the source of the data. We will work on confirming these findings early next week but it would be helpful to understand the source of the information on the comments we have flagged. We expressly reserve the right to comment further on the findings at a later time once the source information is determined.

We provide the following technical observations on the legislative text.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

- (a) Short Title.—This Act may be cited as the “California Drought Relief Act of 2014”.
- (b) Table of Contents.—The table of contents of this Act is as follows:

TECHNICAL ASSISTANCE – NOT ADMINISTRATION POLICY – 9/19 FEINSTEIN
DRAFT

Proposed Comments 9.28.2014 5:00 PM EST

1 Sec.1.Short title; table of contents.

2 Sec.2.Findings.

3 Sec.3.Definitions.

4 **TITLE I—ADJUSTING DELTA SMELT MANAGEMENT**
5 **BASED ON INCREASED REAL-TIME MONITORING AND**
6 **UPDATED SCIENCE**

7 Sec.101.Definitions.

8 Sec.102.Revise incidental take level calculation to reflect new science.

9 Sec.103.Factoring increased real-time monitoring and updated science into delta smelt
10 management.

11 **TITLE II—ENSURING SALMONID MANAGEMENT IS**
12 **RESPONSIVE TO NEW SCIENCE**

13 Sec.201.Definitions.

14 Sec.202.Required scientific studies.

15 Sec.203.Process for ensuring salmonid management is responsive to new science.

16 Sec.204.Pilot program to protect native anadromous fish in the Stanislaus River.

17 Sec.205.CALFED invasive species pilot projects in the Sacramento-San Joaquin Bay Delta and
18 its tributaries.

19 Sec.206.Mark fishery and harvest management.

20 Sec.207.New actions to benefit Central Valley salmonids.

21 **TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT**
22 **RELIEF**

23 Sec.301.Findings.

24 Sec.302.Definitions.

25 Sec.303.Operational flexibility in times of drought.

26 Sec.304.Operation of cross-channel gates.

27 Sec.305.Flexibility for export/inflow ratio.

28 Sec.306.Emergency environmental reviews.

29 Sec.307.Prioritizing State revolving funds during droughts.

30 Sec.308.Increased flexibility for regular project operations.

31 Sec.309.Temporary operational flexibility for first few storms of 2014-2015 water year.

1 Sec.310.Expediting water transfers.

2 Sec.311.Warren Act contracts. [PLACEHOLDER]

3 Sec.312.Additional Warren Act contracts. [PLACEHOLDER]

4 TITLE IV—INCREASING WATER STORAGE

5 Sec.401.Findings.

6 Sec.402.CalFed storage feasibility studies.

7 Sec.403.Water storage project construction.

8 Sec.404.Other storage feasibility studies.

9 Sec.405.Dam safety projects with increased storage component.

10 Sec.406.Updating water operations manuals for non-Federal projects.

11 Sec.407.Central Valley Project.

12 TITLE V—WATER RIGHTS PROTECTIONS

13 Sec.501.Protections for State water project contractors.

14 Sec.502.Area of origin protections.

15 Sec.503.No redirected adverse impacts.

16 Sec.504.Effect on State laws.

17 TITLE VI—MISCELLANEOUS

18 Sec.601.Authorized service area.

19 Sec.602.Rescheduled water.

20 Sec.603.Fisheries disaster declaration.

21 Sec.604.Oversight board for Restoration Fund.

22 Sec.605.Water operations review panel.

23 Sec.606.Contingency in event of continuing resolution for fiscal year 2015.

24

25 SEC. 2. FINDINGS.

26 Congress finds that—

27 (1) As established in the Proclamation of a State of Emergency issued by the Governor of
28 the State on January 17, 2014, the State is experiencing record dry conditions;

29 (2) Extremely dry conditions have persisted in the State since 2012, and the drought
30 conditions are likely to persist into the future;

31 (3) As of September 2014, the National Weather Service’s forecast does not show a high

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likelihood of the State experiencing ~~significant~~ above normal precipitation for the remainder of the calendar year.

(4) The water supplies of the State are at record-low levels, as indicated by the fact that all major Central Valley Project reservoir levels were at or below 40 percent of capacity as of September 11, 2014;

(5) The lack of precipitation has been a significant contributing factor to the 6,091 fires experienced in the State as of September 15, 2014, and which covered nearly 400,000 acres.

(6) According to a study released by the University of California, Davis in July 2014, the drought has led to the fallowing of 428,000 acres of farmland, loss of \$810 million in crop revenue, loss of \$203 million in dairy and other livestock value, and increased groundwater pumping costs by \$454 million. The statewide economic costs are estimated to be \$2.2 billion, with over 17,000 seasonal and part-time agricultural jobs lost.

(7) CVPIA Level II ~~W~~water deliveries to refuges have also ~~declined~~ been reduced by 25% in the north of Delta region, and by 35% in the south of Delta region.

(8) Only one-sixth of the usual acres of rice fields are being flooded this fall, which leads to a significant decline in habitat for migratory birds and an increased risk of disease at the remaining wetlands due to overcrowding of such birds.

(9) The drought of 2013 through 2014 constitutes a serious emergency that poses immediate and severe risks to human life and safety and to the environment throughout the State;

(10) The serious emergency described in paragraph (4) requires—

(A) immediate and credible action that respects the complexity of the water system of the State and the importance of the water system to the entire State; and

(B) policies that do not pit stakeholders against one another, which history shows only leads to costly litigation that benefits no one and prevents any real solutions;

(11) Federal law (including regulations) directly authorizes expedited decisionmaking procedures and environmental and public review procedures to enable timely and appropriate implementation of actions to respond to the type and severity of the serious emergency described in paragraph (4); and

(12) The serious emergency described in paragraph (4) fully satisfies the conditions necessary for the exercise of emergency decisionmaking, analytical, and public review requirements under—

(A) the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

(B) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.);

(C) water control management procedures of the Corps of Engineers described in section 222.5 of title 33, Code of Federal Regulations (including successor regulations); and

(D) the Reclamation States Emergency Drought Relief Act of 1991 (Public Law 102–250; 106 Stat. 53).

Commented [A1]: This looks a little low now. The smaller CVP reservoirs (Folsom and Millerton) are closer to 35%, but the bigger ones (Shasta, Nimbus, Trinity, San Luis) are down to 20-25%. DOI will work with bill author to help verify and, if appropriate, suggest revisions to language.

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(13) The 2008 smelt biological opinion and 2009 salmonid biological opinion contain reasonable and prudent alternatives to protect endangered-listed fish species from being harmed-jeopardized by operation of the Central Valley Project and State Water Project and to prevent adverse modification of designated critical habitat.

(14) The effect of those reasonable and prudent alternatives in the biological opinions may restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(15) Data on the difference between water demand and reliable water supplies for various regions south of the delta, including the San Joaquin Valley, indicate there is a significant annual gap between reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs within the South of Delta and Friant Division of the Central Valley Project and the State Water Project south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range and the demands of those areas. This gap varies depending on the methodology of the analysis performed, but can be represented in the following ways:

(a) For Central Valley Project South-of-Delta water service contractors, if it is assumed that a water supply deficit is the difference in the amount of water available for allocation versus the maximum contract quantity, particularly in more recent years, then the water supply deficits that have developed from 1992 to 2014 as a result of changes besides natural variations in hydrology during this timeframe range between 720,000 and 1,100,000 acre-feet.

Commented [A2]: Need to verify the accuracy of these assertions of fact in this and subsequent paragraphs. Administration stands ready to help verify.

(b) For Central Valley Project and State Water Project water service contractors south of the Delta and north of the Tehachapi mountain range, if it is assumed that a water supply deficit is the difference between reliable water supplies, including maximum water contract deliveries, safe yield of groundwater, safe yield of local and surface supplies and long-term contracted water transfers, and water demands, including water demands from agriculture, municipal and industrial and refuge contractors, then the water supply deficit ranges between approximately 2,500,000 to 2,700,000 acre-feet.

(c) The California Water Plan evaluated outcomes under current conditions under 198 combinations of climate and growth scenarios, projecting a range of urban and agricultural reliability into the future. Reliability in this instance is defined as the percentage of years in which demand is sufficiently met by supply. Reliability across a range of futures within the San Joaquin Valley can be presented as:

(1) For the San Joaquin River Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 90 and 100 percent, with a mean reliability across futures in the high 90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile.

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(2) For the Tulare Lake Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 20 and 100 percent, with a mean reliability across futures in the low 70th percentile.

(16) Since the issuance of the biological opinions, considerably uncertainty still exists about the benefits to ~~endangered~~ listed fish populations from water pumping restrictions. For example, hydrodynamic data, acoustic telemetry studies, and other recent studies found that through-Delta survival rates of salmonid species do not correlate directly and clearly with certain water pumping restrictions, in particular limitations to Old and Middle River flows to levels less negative than -5,000 cubic feet per second.

(17) Data of pumping activities at the Central Valley Project and State Water Project delta pumps identifies that, on average from 2008 to 2014, pumping activity takes 893 delta smelt annually with an authorized take level of 5,003 delta smelt annually – according to the biological opinion issued December 15, 2008.

(18) It is worth exploring whether there is a way to implement the biological opinions that would preserve the protections afforded listed ~~endangered~~ fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

(19) In 2014, better information exists than was known in 2008 concerning conditions and operations that may or may not lead to high salvage events that jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

(20) Alternative management strategies, such as trapping and barging juvenile salmon through the Delta, removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time can contribute significantly to protecting and recovering these endangered fish species, and at potentially lower costs to water supplies.

(21) Resolution of fundamental policy questions concerning the extent to which application of the Endangered Species Act affects the operation of the Central Valley Project and State Water Project is the responsibility of Congress.

SEC. 3. DEFINITIONS.

In this Act:

(1) DELTA.—The term “Delta” means the Sacramento-San Joaquin Delta and the Suisun Marsh, as defined in sections 12220 and 29101 of the California Public Resources Code.

(2) Export Pumping Rates.—The term “export pumping rates” means the rates of pumping at the W.C. “Bill” Jones Pumping Plant and the Harvey O. Banks Pumping Plant, in the southern Delta.

(3) JEOPARDY.—The term “jeopardy” means to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction,

Commented [A3]: We agree with the first sentence. We do not agree with the second and recommend its deletion. There are direct correlations between negative OMRs and raw salvage. We acknowledge that disagreements exist around these correlations and their significance – a central topic in the active litigation now pending before the 9th Circuit Court of Appeals.

Commented [A4]: We need to verify this with bill author.

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numbers, or distribution of that species.

(4) OMR.—The term “OMR” means the Old and Middle River in the Delta.

(5) OMR FLOW OF -5000 CFS.—The term “OMR flow of -5000 cfs” means Old and Middle River flow of negative 5,000 cubic feet per second as measured by—

(A) the smelt biological opinion; and

(B) the salmonid biological opinion.

(6) SALMONID BIOLOGICAL OPINION.—The term “salmonid biological opinion” means the biological opinion issued by the National Marine Fisheries Service on June 4, 2009.

(7) SMELT BIOLOGICAL OPINION.—The term “smelt biological opinion” means the biological opinion on the Long-Term Operational Criteria and Plan for coordination of the Central Valley Project and State Water Project issued by the United States Fish and Wildlife Service on December 15, 2008.

(8) STATE.—The term “State” means the State of California.

**TITLE I—ADJUSTING DELTA SMELT MANAGEMENT
BASED ON INCREASED REAL-TIME MONITORING AND
UPDATED SCIENCE**

SEC. 101. DEFINITIONS.

In this title:

(1) DIRECTOR.—The term “Director” means the Director of the United States Fish and Wildlife Service.

(2) DELTA SMELT.—The term “delta smelt” means the fish species with the scientific name *Hypomesus transpacificus*.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Interior.

**SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA
SMELT TO REFLECT NEW SCIENCE.**

No later than October 1, 2015, the Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data available to complete a review and, if warranted, a modification of the incidental take level in the 2008 delta smelt biological opinion that takes into account, among other considerations,—

- (a) salvage information available over at least 18 years;
- (b) updated or more recently developed statistical models;
- (c) updated scientific and commercial data; and

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(d) the most recent information regarding the environmental factors driving delta smelt salvage.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion, as amended, and any successor opinions shall be implemented consistent with current best scientific and commercial data available, and implementation shall be adjusted accordingly as new scientific and commercial data are developed.

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(b) Increased Monitoring to Inform Real-time Operations.— Contingent upon funding, the Secretary shall conduct additional surveys, on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests.

(1) In implementing this section, after seeking public input, the Secretary shall —

(A) use the most appropriate survey methods for the detection of delta smelt to determine the extent that adult delta smelt are distributed in relation to certain levels of turbidity, or other environmental factors that may influence salvage rate; and

(B) use results from appropriate survey methods for the detection of delta smelt to determine how the Central Valley Project and State Water Project may be operated more efficiently to minimize salvage while maximizing rates of water export.

(2) During the period beginning on December 1, 2014 and ending March 31, 2015, and in each successive December through March period, if suspended sediment loads enter the Delta from the Sacramento River and the suspended sediment loads appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units (NTU) to values above 12 NTU, the Secretary shall—

(A) conduct daily monitoring using appropriate survey methods at locations including, but not limited to, the vicinity of Station 902 to determine the extent that adult Delta smelt are moving with turbidity toward the export pumps; and

(B) use results from the monitoring surveys at locations including, but not limited to, the vicinity of Station 902 to determine how increased trawling can inform daily real-time Central Valley Project and State Water Project operations to minimize salvage while maximizing rates of water export.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Secretary determines it is appropriate, the Secretary shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the Delta, is providing sufficient data to inform Central Valley Project and State Water Project operations to minimize salvage while

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maximizing rates of water export; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— No later than January 1, 2016, contingent upon funding, the Secretary, in collaboration with Delta science partners, shall implement new targeted sampling and monitoring specifically designed to understand delta smelt abundance, distribution, and the types of habitat occupied by delta smelt during all life stages.

(2) SAMPLING.—The Delta smelt distribution study shall, at a minimum—

(A) include recording water quality and tidal data;

(B) be designed to understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) consider areas not routinely sampled by existing monitoring programs, including wetland channels, near-shore water, depths below 35 feet, and shallow-water; and

(D) use the most biologically appropriate survey methods, including sampling gear suited to the type of sampling or monitoring.

(e) Scientifically supported implementation of Old and Middle River Flow requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers as prescribed by the smelt biological opinion, or any successor biological opinion, to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document in writing any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River pursuant to this section, including monitoring in the vicinity of Station 902, indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cubic feet per second will cause significantly increased take of delta smelt; and

(4) show in writing that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid adverse a significant

1 ~~population level effects~~ on the Delta smelt, including an explanation of the data
2 examined and the connection between those data and the choice made, after considering:

3 (A) the findings in paragraph (3);

4 (B) whether continued project operations over the remainder of the water
5 year would exceed the incidental take level;

6 (C) the potential effects of entrainment on subsequent smelt abundance,
7 including consideration of the distribution of the population throughout the
8 Delta,

9 (D) the water temperature,

10 (E) other factors relevant to the determination; and

11 (F) whether any alternative measures could have a lesser water supply
12 impact.

13 (f) Memorandum of Understanding. No later than December 1, 2014, the Commissioner
14 and the Director will execute of Memorandum of Understanding (MOU) to ensure that
15 the smelt biological opinion is implemented in a manner that minimizes water supply
16 losses while complying with applicable laws and regulations. If that MOU alters any
17 procedures set out in the biological opinion, there will be no need to reinitiate
18 consultation if those changes do not have an adverse effect on listed species and the
19 implementation of the MOU would not be a major change to implementation of the
20 biological opinion. Any change to procedures that does not create a new adverse effect
21 to listed species will not alter ~~the application of the take exemption in the incidental take~~
22 ~~statement in parties' take coverage under~~ the biological opinion under ESA Section
23 7(o)(2).

25 TITLE II—ENSURING SALMONID MANAGEMENT IS 26 RESPONSIVE TO NEW SCIENCE

27 SEC. 201. DEFINITIONS.

28 In this title:

29 (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the
30 Assistant Administrator of NOAA Fisheries..

31 (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin
32 steelhead, natural origin genetic spring run Chinook, and genetic winter run Chinook
33 salmon smolts.

34 (3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

35 SEC. 202. REQUIRED SCIENTIFIC STUDIES.

Commented [A5]: We recommend against using the standard of “significant population level effect” as a standard by which to establish specific operational criteria. We suggest “necessary to avoid adversely affecting Delta smelt”, consistent with the MOU language, below.

Commented [A6]: We respectfully decline support for the development of a trap and haul program for listed steelhead as a priority for addressing drought challenges. We believe there are significant and powerful uncertainties around the ability to implement a scientifically credible pilot program for barging listed steelhead at this time. For example, earlier efforts to examine such a program have floundered on the sample sizes that would be required, and the lack of available fish to populate those samples. Bill authors should be aware of these limitations if choosing to proceed with this pilot project.

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(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed through the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Assistant Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Assistant Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Assistant Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Assistant Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to the Senate Environment and Public Works Committee and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner's recommendations regarding broadening the pilot program, ~~and adjusting the provisions of the salmonid biological opinion pursuant to section 203.~~

(b) Tagging studies.

(1) IN GENERAL.—The Assistant Administrator, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are experimentally altered and the behavior and survival of tagged juvenile salmonids are observed. Studies may also be conducted to aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

Commented [A7]: Please understand that it might take a DECADE or more to conduct a pilot program, assuming it is feasible at the outset.

Commented [A8]: We strongly support investing in precision water and fish management. Similar to the focus in Title 1, we recommend placing a higher priority on the design and implementation of tagging and monitoring programs that can assist in the implementation of "real time" operating criteria in lieu of calendar based criteria where feasible. Such a focus hopes a far higher degree of enhancing flexible water management operations than a number of the other current points of emphasis, including trap and haul, mass marking, etc. etc. which are likely to have no immediate or near term benefits.

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(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

SEC. 203. PROCESS FOR ENSURING SALMONID
MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General directive. The reasonable and prudent alternative described in the salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.

(b) Annual reviews of certain operating criteria. No later than December 31, 2015, and at least annually thereafter,

1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall commence annual efforts to examine and identify adjustments to the timing of pumping operations in initiation of Action IV.2.3 pertaining to negative OMR flows.
2. The Commissioner, in consultation with and with the assistance of the Assistant Administrator, shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in Action IV.2.1 pertaining to the inflow to exports requirements.
3. Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator Commissioner make recommendations to the Assistant Administrator Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).
4. The Assistant Administrator and the Commissioner shall implement those adjustments for which the conditions under subsection (c) are met.
5. The Assistant Administrator and the Commissioner shall review and identify adjustments to water supply restrictions in any successor biological opinion to the salmonid biological opinion, applying the provisions of this section to those water supply restrictions where

Commented [A9]: We respectfully recommend against legislating permanent law governing how the CVP and the ESA should be implemented. Many of the specifics of the current biological opinions will change over time. Legislating permanent requirements governing specific operating criteria may impede the ability to make these changes and foster considerable confusions as to the prevailing statutory regime. We therefore recommend providing a time limitation to these provisions, enabling them to expire after the end of the drought or by a time certain.

Commented [A10]: Per the comment above, we recommend including in section b) "and until such time as Action IV 2.3 is superseded"

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there are references to Actions IV.2.1 and IV.2.3.

(c) Adjustments that shall be implemented. In ~~making-receiving~~ the recommendations under subsection (b), the Assistant Administrator shall evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner adjustments for which:

1. the net effect on listed species is ~~at worst~~ equivalent to those of the underlying criteria, taking into account whatever actions or measures may be implemented in conjunction with the adjustments to mitigate its effects; ~~and~~
2. the effects of the adjustment fall within the incidental take authorizations.

(d) Taking into account offsetting species survival benefits from other measures.

1. When examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria as described in (b) and (c), the Commissioner and the Assistant Administrator shall take into account the potential salmonid survival improvements that are likely to result from other measures which, if implemented in conjunction with the adjustments, would offset the adverse effects of the adjustments. When considering offsetting mitigating measures, the Commissioner and the Assistant Administrator shall take into account the type, timing and nature of the adverse effects to specific species and ensure that the mitigation measures serve as offsets to those adverse effects.

~~1-2.~~ The offsetting measures could include actions implemented with the support of a substantial contribution from water districts that would benefit from the adjustments.

(e) Framework for examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Assistant Administrator shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available and for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—

- (1) with export restrictions as specified by Action IV.2.3 as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (2) with San Joaquin River inflow to export restrictions specified within Action IV.2.1 as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;
- (3) by a trap and barge program based on the ~~experience of other comparable systems and the~~

Commented [A11]: Please note additional text.

Commented [A12]: "Comparable systems" should be identified, if used. There has been research in this, and survival down the San Joaquin is dismal compared to other systems, thus, may not be any comparable systems. Results of the trap and barge program should be compared to the situation without, and include survival and % straying.

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study described in section 202, as that information becomes available;

(4) through physical habitat restoration improvements;

(5) through predation control programs;

(6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;

(7) by salvaging entrained fish at the entrance to Clifton Court Forebay, if feasible; and

(8) by any other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

1) The Assistant Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

2) If the Assistant Administrator provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival to specific species relative to the other measures.

3) If at the time the Assistant Administrator conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the specific species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

(1) For the purposes of this subsection—

(A) The alternative management measure or combination of alternative management measures identified in paragraph (2) shall be known as the “equivalent alternative measure.”

(B) The existing measure or measures identified in subparagraphs (2)(A),(B),(C), or (D) shall be known as the “equivalent existing measure.”

(C) An “equivalent increase in through-Delta survival rates for listed salmonid species” shall mean an increase in through-Delta survival rates that is equivalent when

Commented [A13]: Please note “if feasible” addition. The screening of the forebay was evaluated and rejected a decade ago on feasibility grounds. We recommend undertaking a pilot program to evaluate the feasibility.

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considering the change in through-Delta survival rates for the listed salmonid species on a species by species basis, considered as a whole, and not necessarily the same change for each individual species.

Commented [A14]: A fundamental principle of the ESA is that it is designed to protect specific listed species, subspecies or distinct population segments. We oppose the proposition of treating listed salmonids "as a whole", and not on a species specific basis. Suggested edit.

(2) As part of the reviews of operating criteria pursuant to subsection (b), the Assistant Administrator shall determine whether any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) would provide an increase in through-Delta survival rates for listed salmonid species that is equivalent to the increase in through-Delta survival rates for listed salmonid species from the following:

Commented [A15]: Please see above comments that "offsets" must be species specific and effects specific. NOAA recommends clarifying this specificity here and throughout to avoid confusion and litigation as to what constitutes "off-setting mitigation".

(A) with export restrictions as specified by Action IV.2.3, as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable;

(B) with export restrictions as specified by Action IV.2.3, as compared to a modification of Action IV.2.3 that would provide additional water supplies, other than that described in subparagraph (A);

(C) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, or

(D) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to a modification of Action IV.2.1 that would provide additional water supplies, other than that described in subparagraph (C).

(3) If the Assistant Administrator identifies an equivalent alternative measure pursuant to paragraph (2), the Assistant Administrator shall determine whether

(A) it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, and

(B) the adverse consequences of doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

(4) If the Assistant Administrator makes the findings in subparagraph (3)(A) and (B), the Assistant Administrator and the Commissioner shall adjust the operating criteria in the salmonid biological opinion pursuant to this subsection to implement the equivalent alternative measure in place of the equivalent existing measure in order to increase water supplies to the greatest extent possible while maintaining a net combined effect of equivalent through-Delta survival rates for the listed salmonid species.

(h) Tracking incidental take levels and coordinated operation with smelt biological opinion.

(1) Among the adjustments to the operational criteria considered through the adaptive management process under this section, the Assistant Administrator and the Commissioner shall

Commented [A16]: We respectfully oppose the use of the incidental take authorizations as the management objective for establishing or adjusting individual operating criteria, as is proposed here. The incidental take authorizations do not serve this purpose, and are expressed as much "coarser" levels of effects than are the individual operating criteria. We suggest "adverse effects" as a better standard.

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- 1 A) Evaluate the effect on through-Delta survival rates for listed salmonid species
2 and water supply benefits of imposing part or all of the provisions of Actions
3 IV.2.1 and IV.2.3 only in instances where necessary to do so in order to avoid
4 exceeding the incidental take level for listed salmonid species from project
5 operations over the remainder of the water year; and
6 B) Consider requiring that before some or all of the provisions of Actions IV.2.1.
7 or IV.2.3 are imposed in any specific instance, the Assistant Administrator
8 show that the implementation of these provisions in that specific instance is
9 necessary to avoid adverse effects to exceeding the incidental take level for
10 listed salmonid species from project operations over the remainder of the
11 water year.

12 (2) Through tracking incidental take levels or some other mechanism, the Assistant
13 Administrator and the Commissioner shall consider establishing operational criteria to
14 coordinate management of OMR flows under the smelt and salmonid biological opinions,
15 in order to take advantage of opportunities to provide additional water supplies from the
16 coordinated implementation of the biological opinions.

17 SEC. 204. PILOT PROGRAM TO PROTECT NATIVE
18 ANADROMOUS FISH IN THE STANISLAUS RIVER.

19 (a) Establishment of Non-native Predator Fish Removal Program. The Assistant
20 Administrator, in consultation with the United States Fish and Wildlife Service and the
21 California Department of Fish and Wildlife, shall develop and conduct a pilot non-native
22 predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth
23 bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the
24 Stanislaus River, contingent upon funding. The pilot program shall--

25 (1) be scientifically based;

26 (2) include methods to quantify the number and size of predator fishes removed each
27 year, the impact of such removal on the overall abundance of predator fishes, and the impact
28 of such removal on the populations of juvenile anadromous fish found in the Stanislaus
29 River and elsewhere by, among other things, evaluating the number of juvenile anadromous
30 fish that migrate past the rotary screw trap located at Caswell;

31 (3) among other methods, use wire fyke trapping, portable resistance board weirs, and
32 boat electrofishing, which are among the most effective predator collection techniques that
33 minimize effects to native anadromous fish;

34 (4) be developed, including the application for all necessary scientific research and
35 species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973
36 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months
37 after the date of the enactment of this Act;

38 (5) be implemented on the first business day of the calendar year following the issuance
39 of all necessary scientific research, and species enhancement permits, and funding needed to
40 begin the pilot program; and

Commented [A17]: The predator removal program should be conducted upstream of Caswell. That specificity should be stated somewhere. Maybe insert a new #2 to say, "on the Stanislaus River, be conducted upstream of the rotary screw trap at Caswell."

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(6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct.—

(1) IN GENERAL.— By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES.—In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION.—The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding.—

(1) ANNUAL FUNDING.—The Commissioner, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to ~~the fund directed by~~ the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

(2) ACCOUNTING.—On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). or NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled. If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be

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deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation.—

(1) IN GENERAL.—On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT.—On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly submit a report for publication peer reviewed report that—

Commented [A18]: Publication timelines vary, should not set a deadline for peer reviewed report, but rather, submission of the report for peer review.

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process.—

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews.—To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions.—For the purposes of this section:

(1) COMMISSIONER.—The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS.—The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM.—The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset.—The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS

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IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California's water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife,

Commented [A19]: We think this is speculation. Predation is an important stressor, but to say that nonnative species will cause pelagic and anadromous communities to go extinct is a pretty bold statement.

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shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section 204, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

(vii) Paintersville Bridge,

(viii) individual river tributaries important for wild populations of anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(ix) Human-made submerged structures, and

(x) Salvage release sites.

Commented [A20]: Please note that there was already a predation workshop, and consider directing the review and implementation of its recommendations rather than duplicate another workshop.

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(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement nonnative reduction methods at a larger number of sites, incorporating information learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable and prudent alternatives contained in the salmonid biological opinion and the biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or other administrative federal requirements governing the operation of the Central Valley Project and the State Water Project, that are likely to produce additional fishery, water quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program described in subpart (b) for at least a period of seven consecutive years beginning on the date of implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the Senate Committee on Environment and Public Works and the House Committee on Natural Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b), including the application for all necessary scientific research and species enhancement permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and how such efforts have helped the Recovery Plans for endangered and threatened Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial

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program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall—

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The Assistant Administrator shall ensure that the independent science panel—

(A) Includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries;

(B) Considers and gives equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Completes the review by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

(A) In carrying out the assessment under this Paragraph, any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in

Commented [A21]: Please note that NOAA Fisheries and others convened the California Hatchery Scientific Review Group, which released a comprehensive set of recommendations on hatchery reforms, including expanded marking and tagging of hatchery releases. Respectfully recommend deletion of this section as redundant and not an important priority for addressing the 2015 drought. We remain totally open to exploring more aggressive implementation of the Cal. HSRG's recommendations with legislators and other interested parties.

Commented [A22]: DOI still not clear on the intent of this section. Recommend offline discussion with bill author.

collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT RELIEF

SEC. 301. FINDINGS.

Congress finds that—

(1) Based on the congressional findings in Sec. 2 of this Act, it is appropriate and necessary for federal agencies to exercise the maximum amount of flexibility provided to them under the applicable laws and regulations to maximize delivery of water supplies while providing the same or better levels of protection for species.

SEC. 302. DEFINITIONS.

In this title:

(1) CENTRAL VALLEY PROJECT.—The term “Central Valley Project” has the meaning given the term in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4707).

(2) KLAMATH PROJECT.—The term “Klamath Project” means the Bureau of Reclamation project in the States of California and Oregon, as authorized under the Act of June 17, 1902 (32 Stat. 388, chapter 1093).

(3) RECLAMATION PROJECT.—The term “Reclamation Project” means a project constructed pursuant to the authorities of the reclamation laws and whose facilities are wholly or partially located in the State.

(4) SECRETARIES.—The term “Secretaries” means—

(A) the Administrator of the Environmental Protection Agency;

(B) the Secretary of Agriculture;

(C) the Secretary of Commerce; and

(D) the Secretary of the Interior.

(5) STATE WATER PROJECT.—The term “State Water Project” means the water project described by California Water Code section 11550 et seq., and operated by the California

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Department of Water Resources.

SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT.

(a) Water Supplies.—

(1) IN GENERAL.—In response to a declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, the Secretaries shall provide the maximum quantity of water supplies practicable to Central Valley Project agricultural, municipal and industrial, and refuge service and repayment contractors, State Water Project contractors, and any other tribe, locality or municipality in the State, by approving, consistent with applicable laws (including regulations), projects and operations to provide additional water supplies as quickly as practicable based on available information to address the emergency conditions.

(2) APPLICATION.—Paragraph (1) applies to projects or operations involving the Klamath Project if the projects or operations would benefit Federal water contractors in the State.

(b) Administration.—In carrying out subsection (a), the Secretaries shall, consistent with applicable laws (including regulations)—

(1) issue all necessary permit decisions under the authority of the Secretaries not later than 30 days after the date on which the Secretaries receive a completed application from the State to place and use temporary barriers or operable gates in Delta channels to improve water quantity and quality for the State Water Project and the Central Valley Project south of Delta water contractors and other water users, on the condition that the barriers or operable gates—

(A) provide benefits for species protection and in-Delta water user water quality; and

(B) are designed so that formal consultations under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536) are not necessary;

(2) require the Director of the United States Fish and Wildlife Service and the Commissioner of Reclamation—

(A) to complete, not later than 30 days after the date on which the Director or the Commissioner receives a complete written request for water transfer associated with voluntarily fallowing nonpermanent crops in the State, all requirements under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) necessary to make final permit decisions on the request; and

(B) to grant any water transfer request described in subparagraph (A) to maximize the quantity of water supplies available for nonhabitat uses, on the condition that the fallowing and associated water transfer are in compliance with applicable Federal laws (including regulations);

(3) adopt a 1:1 inflow to export ratio for the increment of increased flow of the San

Commented [A23]: We recommend recasting Sec. 303 in the context of the development of a 2015 Drought Operations Plan as per earlier Administration recommendations. See text we have previously submitted at the end of this document "ALTERNATIVE SEC. 303"

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Joaquin River, as measured as a 3-day running average at Vernalis during the period beginning on April 1, and ending on May 31, resulting from voluntary transfers and exchanges of water supplies, on the condition that a proposed transfer or exchange under this paragraph may only proceed if the Secretary of the Interior determines that the environmental effects of the proposed transfer or exchange are consistent with effects permissible under applicable law (including regulations), and Delta conditions are suitable to allow movement of the transfer water through the Delta consistent with Reclamation's permitted rights; and

(4) Provide additional priority for eligible WaterSMART projects that address drought conditions including projects that—

(A) provide emergency drinking and municipal water supplies to localities in a quantity necessary to meet minimum public health and safety needs;

(B) prevent the loss of permanent crops;

(C) minimize economic losses resulting from drought conditions; or

(D) provide innovative water conservation tools and technology for agriculture and urban water use that can have immediate water supply benefits.

(c) Accelerated Project Decision and Elevation.—

(1) IN GENERAL.—On request by the Governor of the State, the heads of Federal agencies shall use the expedited procedures under this subsection to make final decisions relating to a Federal project or operation if the project's or operation's purpose is to provide relief for emergency drought conditions pursuant to subsections (a) and (b).

(2) REQUEST FOR RESOLUTION.—

(A) IN GENERAL.—On request by the Governor of the State, the head of a Federal agency referenced in paragraph (1), or the head of another Federal agency responsible for carrying out a review of a project, as applicable, the Secretary of the Interior shall convene a final project decision meeting with the heads of all relevant Federal agencies to decide whether to approve a project to provide relief for emergency drought conditions.

(B) MEETING.—The Secretary of the Interior shall convene a meeting requested under subparagraph (A) not later than 7 days after the date on which the meeting request is received.

(3) NOTIFICATION.—On receipt of a request for a meeting under paragraph (2), the Secretary of the Interior shall notify the heads of all relevant Federal agencies of the request, including information on the project to be reviewed and the date of the meeting.

(4) DECISION.—Not later than 10 days after the date on which a meeting is requested under paragraph (2), the head of the relevant Federal agency shall issue a final decision on the project.

(5) MEETING CONVENED BY SECRETARY.—The Secretary of the Interior may convene a final project decision meeting under this subsection at any time, at the discretion of the Secretary, regardless of whether a meeting is requested under paragraph (2).

Commented [A24]: Please note that as a technical matter the 1:1 ratio under Action IV.2.1 pertains to a critically dry year, while other ratios are applicable to differing water year types. We note the directive to examine the broader application of the 1:1 ratio and implement it if consistent with permissible effects.

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Commented [A25]: Please note that this may not be consistent with subsection (e)(2), below, which includes the ESA.

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(d) Application.—To the extent that a Federal agency, other than the agencies headed by the Secretaries, has a role in approving projects described in subsections (a) and (b), this section shall apply to those Federal agencies.

(e) Limitation.—Nothing in this section authorizes the heads of applicable Federal agencies to approve projects—

(1) that would otherwise require congressional authorization; or

(2) without following procedures required by applicable law.

SEC. 304. OPERATION OF CROSS-CHANNEL GATES.

Commented [A26]: We are unclear if the operation described is physically feasible for DCC operation

(a) In General.—The Secretary of Commerce and the Secretary of the Interior shall jointly—

(1) authorize and implement activities to ensure that the Delta Cross Channel Gates remain open to the maximum extent practicable using findings from the United States Geological Survey on diurnal behavior of juvenile salmonids, timed to maximize the peak flood tide period and provide water supply and water quality benefits for the duration of the drought emergency declaration of the State, consistent with operational criteria and monitoring criteria developed pursuant to the Order Approving a Temporary Urgency Change in License and Permit Terms in Response to Drought Conditions of the California State Water Resources Control Board, effective January 31, 2014 (or a successor order) and other authorizations associated with it;

Commented [A27]: NOAA provided specific operational criteria applicable to the DCC; hence the additional references as proposed.

(2) with respect to the operation of the Delta Cross Channel Gates described in paragraph (1), collect data on the impact of that operation on—

(A) species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

(B) water quality; and

(C) water supply;

(3) consistent with knowledge gained from activities carried out during 2014, collaborate with the California Department of Water Resources to install a deflection barrier at Georgiana Slough in coordination with Delta Cross Channel Gate diurnal operations to protect migrating salmonids;

Commented [A28]: We recommend verifying if this action is feasible. We are happy to work with bill authors offline to answer this question.

(4) evaluate the combined salmonid survival in light of activities carried out pursuant to paragraphs (1) through (3) in deciding how to operate the Delta Cross Channel gates to enhance salmonid survival and water supply benefits; and

(5) not later than May 15, 2015, submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Natural Resources of the House of Representatives a written report on the extent to which the gates are able to remain open.

(b) Recommendations.—After assessing the information collected under subsection (a), the Secretary [of the Interior] shall recommend revisions to the operation of the Delta Cross-Channel Gates, to the Central Valley Project, and to the State Water Project, including, if appropriate, any reasonable and prudent alternatives contained in the biological opinion issued by the National Marine Fisheries Service on June 4, 2009, that are likely to produce fishery, water quality, and

water supply benefits.

Commented [A29]: Please clarify that this might also require changes to D-1641 to implement

SEC. 305. FLEXIBILITY FOR EXPORT/INFLOW RATIO.

In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, ~~consistent with the Central Valley Project and State Water Project Drought Operations Plan and Operational Forecast~~, the Commissioner of the Bureau of Reclamation shall continue to vary the averaging period of the Delta Export/Inflow ratio pursuant to the California State Water Resources Control Board decision D1641, approved in the March Temporary Urgency Change Order—

Commented [A30]: Rather than Gov, may want to consider tying the section to the designation of the end of the critical drought through reference to the relevant federal drought monitoring authority -- and not to a proclamation by the Governor -- in order to tie it to a factual circumstance and not to a policy decision by a state official.

(1) to operate to a 35 percent Export/Inflow ratio with a 3 day averaging period on the rising limb of a Delta inflow hydrograph; and

(2) to operate to a 14 day averaging period on the falling limb of the Delta inflow hydrograph.

SEC. 306. EMERGENCY ENVIRONMENTAL REVIEWS.

To minimize the time spent carrying out environmental reviews and to deliver water quickly that is needed to address emergency drought conditions in the State during the duration of an emergency drought declaration, the head of each applicable Federal agency shall, in carrying out this Act, consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations), to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) during the emergency.

SEC. 307. PRIORITIZING STATE REVOLVING FUNDS DURING DROUGHTS.

(a) In General.—This section shall apply for each of the fiscal years during which an emergency drought declaration of the State is in effect.

(b) The Administrator of the Environmental Protection Agency, in implementing the processes and programs under the State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), shall, for those projects that are eligible to receive assistance under section 603 of the Federal Water Pollution Control Act (33 U.S.C. 1383) or section 1452(a)(2) of the Safe Drinking Water Act (42 U.S.C. 300j-12(a)(2)),

(1) issue a determination of waivers within 30 days of the conclusion of the informal public comment period pursuant to section 436(c) of title IV of division G of Public Law 113-76; and

(2) authorize, at the request of the State, 40-year financing for assistance under section 603(d)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)(2)) or section 1452(f)(2) of the Safe Drinking Water Act (42 U.S.C. 300j-12(f)(2)).

(c) Effect of Section.—Nothing in this section authorizes the Administrator of the

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Environmental Protection Agency to modify any funding allocation, funding criteria, or other requirement relating to State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) for any other State.

SEC. 308. INCREASED FLEXIBILITY FOR REGULAR PROJECT OPERATIONS.

The Secretaries shall, consistent with applicable laws (including regulations)—

(1) to the maximum extent practicable, based on the availability of water and without causing land subsidence or violating water quality standards—

(A) help meet the contract water supply needs of Central Valley Project refuges through the improvement or installation of water conservation measures, water conveyance facilities, and wells to use groundwater resources, on the condition that those activities may only be accomplished by using funding made available under the Water Assistance Program or the WaterSMART program of the Department of the Interior; and

(B) make available to Central Valley Project contractors a quantity of Central Valley Project surface water obtained from the activities carried out under subparagraph (A);

(2) contingent upon funding, in coordination with the Secretary of Agriculture, enter into an agreement with the National Academy of Sciences to conduct a comprehensive study, to be completed not later than 1 year after the date of enactment of this Act, on the effectiveness and environmental impacts of saltcedar biological control efforts on increasing water supplies and improving riparian habitats of the Colorado River and its principal tributaries, in the State and elsewhere;

(3) in coordination with the California Department of Water Resources and the California Department of Fish and Wildlife, implement offsite upstream projects in the Delta and upstream Sacramento River and San Joaquin basins that offset the effects on species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) due to activities carried out pursuant this Act, [as determined by the Secretaries];

(4) manage reverse flow in the Old and Middle Rivers as prescribed by the biological opinions issued by the United States Fish and Wildlife Service on December 15, 2008, for Delta smelt and by the National Marine Fisheries Service on June 4, 2009, for salmonids, or any successor biological opinions, to minimize water supply reductions for the Central Valley Project and the State Project, and issue guidance no later than December 31, 2015 directing their employees to take all steps necessary to manage flow in accordance with this paragraph;

(5) as soon as practicable after the date of enactment of this Act and pursuant to existing authority available to the Secretary of the Interior, participate in, issue grants, or otherwise provide funding for pilot projects to increase water in reservoirs in regional river basins experiencing extreme, exceptional, or sustained drought that have a direct impact on the

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water supply of the State, including the Colorado River Basin, on the condition that any participation, grant, or funding by the Secretary of the Interior with respect to the Upper Division shall be with or to the respective State; and

(6) use all available scientific tools to identify any changes to real-time operations of the Bureau of Reclamation, State, and local water projects that could result in the availability of additional water supplies.

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- (1) During the ~~2013~~ 2014 water year, operations of the Central Valley Project and the State Water Project, the incidental take of adult Delta smelt was zero; of juvenile Delta smelt, 78 (7.7% of the incidental take limit); of winter run chinook, 339 (1.4% of the incidental take limit); of spring run chinook, zero; and of steelhead, 261 (8.7% of the incidental take limit).
- (2) The Central Valley Project and State Water Project exceeded a Old and Middle River flow combined pumping capacity of -5,000 cubic feet per second over a 14-day average for brief periods after three storm events in February and March 2014, as a result of increased pumping, but did not cause substantially increased take of smelt or salmon.
- (3) Hydrological conditions in dry years, such as the ~~2013~~ 2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- (4) The Secretaries should be allowed more flexibility to increase pumping levels without causing significant risk to the listed species or weakening other environmental protections.
- (5) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the ~~2014~~ 2015 water year, and provide for the diversion of those supplies to the Central Valley Project and State Water Project so that farms, businesses, and homes in drought-stricken areas will have an opportunity to bolster their meager supplies when water is available.

(b) In general. Consistent with avoiding additional significant adverse effects upon take of listed fish beyond those currently authorized under the ESA likely to result in exceeding the incidental take level in the biological opinions and other environmental protections under subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at up to -7500 cubic feet per second (based on USGS gages on Old and Middle rivers) daily average for up to 21 - ~~even~~ cumulative days after October 1, 2014, as described in subsection (c).

(c) Days of temporary operational flexibility. The temporary operational flexibility described in subsection (b) shall be authorized on days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

Commented [A31]: We have not at the time of these comments been able to verify whether these findings are accurate and note the use of surrogates to estimate salvage and loss of listed spring-run at the pumps. We reserve the opportunity to provide additional data and modifications to the language to accurately describe the effects of 2014 operations as those data are analyzed and refined.

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Commented [A32]: Please note the change in language to "adverse effects beyond those currently authorized under the ESA" and "up to" 21 cumulative days. These changes are important to maintain Agency operational flexibility and avoid potential litigation.

Commented [A33]: Please note that first flush flows over 14,000 cfs at Wilkins Slough have been observed to trigger emigration of winter-run, so that the timing of increased exports with more negative OMR may coincide with higher emigration of and effects to winter-run. The agencies are actively evaluating the ability to implement adjustments to negative OMR criteria to enhance early spring water deliveries thru the deployment of real time monitoring capabilities, and will implement such adjustments thru the 2015 Drought Operations Plan.

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(d) Compliance with ESA incidental take authorizations. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of temporary operational flexibility as they determine may be necessary to avoid undue additional adverse effects over and above those authorized under the ESA that otherwise project operations over the remainder of the water year would exceed the incidental take authorizations in the biological opinions.

Commented [A34]: Please note the recommended modifications to the operative standard: the incidental take authorizations do not function as biological objectives for specific operating criteria and were not designed to do so.

Commented [A35]: The incidental take limits are not meant to operate to.

(e) Other environmental protections.

- (1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year;
- (2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;
- (3) This section shall not have any effect on the applicable requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of such applicable requirements may be adjusted ~~relaxed~~ during this time period to provide emergency water supply relief without resulting in additional adverse effects beyond those authorized under the ESA, exceeding the incidental take level;
- (4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential negative impacts and actions necessary to mitigate any impacts of the temporary operational flexibility to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and
- (5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements of this section.

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(f) Technical adjustments to target period. If, before temporary operational flexibility has been implemented on 21 cumulative days, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative than -7500 cubic feet per second during days of temporary operational flexibility as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) Emergency consultation; effect on running averages.

- 1) If necessary to implement the provisions of this section, the Commissioner shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of temporary operational flexibility—

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A) no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e); and

B) including, as appropriate, adjustments to ensure that the actual flow rates during the periods of temporary operational flexibility do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.

2) Following the conclusion of the 21 days of temporary operational flexibility, the Commissioner shall not ~~need to~~ reinitiate consultation on these adjusted operations on the biological opinions if the effects on listed species of these operations under this section remain within the range of those those currently authorized under the ESA, e incidental take authorizations.

Commented [A36]: Please note recommended changes.

(h) Level of detail required for analysis. In articulating the determinations required under this section, the Secretaries shall fully satisfy the requirements herein but shall not be expected to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely decision-making in response to changing conditions in the Delta.

(i) Duration. This section shall expire on September 30, 2015.

SEC. 310. EXPEDITING WATER TRANSFERS.

(a) In General.—Section 3405(a) of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4709(a)) is amended—

(1) by redesignating paragraphs (1) through (3) as paragraphs (4) through (6), respectively;

(2) in the matter preceding paragraph (4) (as so designated)—

(A) in the first sentence, by striking “In order to” and inserting the following:

“(1) IN GENERAL.—In order to”;

(B) in the second sentence, by striking “Except as provided herein” and inserting the following:

“(3) TERMS.—Except as otherwise provided in this section”;

(3) by inserting before paragraph (3) (as so designated) the following:

“(2) EXPEDITED TRANSFER OF WATER.—The Secretary shall take all necessary actions to facilitate and expedite transfers of Central Valley Project water in accordance with—

“(A) this Act;

“(B) any other applicable provision of the reclamation laws; and

“(C) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).”;

(4) in paragraph (4) (as so designated)—

(A) in subparagraph (A), by striking “to combination” and inserting “or combination”; and

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(B) by striking “3405(a)(2) of this title” each place it appears and inserting “(5)”;
(5) in paragraph (5) (as so designated), by adding at the end the following:

“(E) The contracting district from which the water is coming, the agency, or the
Secretary shall determine if a written transfer proposal is complete within 45 days after
the date of submission of the proposal. If the contracting district or agency or the
Secretary determines that the proposal is incomplete, the district or agency or the
Secretary shall state with specificity what must be added to or revised for the proposal
to be complete.”; and

(6) in paragraph (6) (as so designated), by striking “3405(a)(1)(A)-(C), (E), (G), (H), (I),
(L), and (M) of this title” and inserting “(A) through (C), (E), (G), (H), (I), (L), and (M) of
paragraph (4)”.

(b) Conforming Amendments.—The Central Valley Project Improvement Act (Public Law
102–575) is amended—

(1) in section 3407(c)(1) (106 Stat. 4726), by striking “3405(a)(1)(C)” and inserting
“3405(a)(4)(C)”; and

(2) in section 3408(i)(1) (106 Stat. 4729), by striking “3405(a)(1) (A) and (J) of this title”
and inserting “subparagraphs (A) and (J) of section 3405(a)(4)”

SEC. 311. WARREN ACT CONTRACTS.

[To be supplied.]

SEC. 312. ADDITIONAL WARREN ACT CONTRACTS.

[To be supplied.]

Commented [A37]: Language was not provided and the
Administration takes no position on these sections.

TITLE IV—INCREASING WATER STORAGE

SEC. 401. FINDINGS.

Congress finds that—

(1) the record drought conditions being experienced in the State as of the date of
enactment of this Act are—

(A) expected to recur in the future; and

(B) likely to do so with increasing frequency;

(2) water storage is an indispensable and integral part of any solution to address the long-
term water challenges of the State;

(3) Congress authorized relevant feasibility studies for 4 water storage projects in the
State, including projects for—

(A) enlargement of Shasta Dam in Shasta County under section 2(a) of Public Law

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96–375 (94 Stat. 1506), as reaffirmed under section 103(d)(1)(A)(i)(I) of Public Law 108–361 (118 Stat. 1684);

(B) enlargement of Los Vaqueros Reservoir in Contra Costa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(i)(II) of Public Law 108–361 (118 Stat. 1684);

(C) construction of North-of-Delta Offstream Storage (Sites Reservoir) in Colusa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(I) of Public Law 108–361 (118 Stat. 1684); and

(D) construction of the Upper San Joaquin River storage (Temperance Flat) in Fresno and Madera Counties under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(II) of Public Law 108–361 (118 Stat. 1684);

(4)(A) as of the date of enactment of this Act, it has been more than 10 years since the authorization of the feasibility studies referred to in paragraph (3); but

(B) complete and final feasibility studies have not been prepared for any of those water storage projects;

(5) as of August 2014, only 2 of the 4 projects referred to in paragraph (3) have completed draft feasibility studies;

(6) the slow pace of work on completion of the feasibility studies for those 4 water storage projects is—

(A) unjustified; and

(B) of deep concern; and

(7) there is significant public interest in, and urgency with respect to, completing all feasibility studies and environmental reviews for the water storage projects referred to in paragraph (3), given the critical need for that infrastructure to address the water challenges of the State.

SEC. 402. CALFED STORAGE FEASIBILITY STUDIES.

(a) In General.—Notwithstanding subparagraph (B)(i) of section 103(d)(1) of Public Law 108–361 (118 Stat. 1684), the Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this title as the “Secretary”), shall complete a final feasibility study and any other applicable environmental review documents for the project described in—

(1) subparagraph (A)(i)(I) of that section by not later than December 31, 2014;

(2) subparagraph (A)(ii)(II) of that section by not later than July 31, 2015.

(b) Environmental Reviews.—In carrying out subsection (a), the Secretary—

(1) shall ensure that—

(A) all applicable reviews, including reviews required under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), are completed as

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expeditiously as practicable; and

(B) the shortest applicable process under that Act is used, including in the completion of—

(i) feasibility studies;

(ii) draft environmental impact statements; and

(iii) final environmental impact statements; and

(2) shall not be required to complete a draft or final environmental impact statement if the Commissioner of Reclamation determines, and the Secretary concurs, that the project fails to meet applicable Federal cost-benefit requirements or standards.

(c) Accountability.—

(1) If the Bureau of Reclamation determines that an environmental review document for the water storage projects referenced in of Section 103(d)(1) of P.L. 108-361 will not be completed according to the schedule specified in subsection (a), the Bureau shall notify the Senate Committee on Energy and Natural Resources, the Senate Appropriations Subcommittee on Energy and Water Development, and the House of Representatives Transportation and Infrastructure Committee within 14 days of the determination. The notification shall include:

(A) An explanation of the delay;

(B) The anticipated length of the delay and the revised completion date;

(C) The steps that the Bureau will take to mitigate the delay, including, but not limited to, a request to reprogram existing funds appropriated to the Bureau to meet the revised completion deadline.

(b) The Bureau of Reclamation shall carry out the procedures in subsection (a) for each subsequent delay beyond the revised completion deadline.

SEC. 403. WATER STORAGE PROJECT CONSTRUCTION.

(a) The Secretary, acting through the Commissioner of the Bureau of Reclamation, may partner or enter into an agreement on the water storage projects identified in section 103(d)(1) of the Water Supply Reliability and Environmental Improvement Act (Public Law 108-361) (and Acts supplemental and amendatory to the Act) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments within the applicable hydrologic region, to advance those projects.

(b) [PLACEHOLDER FOR AUTHORIZATION ISSUE]

SEC. 404. OTHER STORAGE FEASIBILITY STUDIES.

(a) Definition of Qualifying Project.—In this section, the term “qualifying project” means new surface water storage projects constructed on lands administered by the Department of the Interior in a State in which the Bureau of Reclamation has jurisdiction, exclusive of any easement, right-of-way, lease, or any private holding.

(b) Lead Agency.—

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(1) QUALIFYING PROJECTS WITHIN JURISDICTION OF BUREAU OF RECLAMATION.—The Bureau of Reclamation shall serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct qualifying projects within the jurisdiction of the Bureau.

(2) QUALIFYING PROJECTS OUTSIDE JURISDICTION OF BUREAU OF RECLAMATION.—If the site of a qualifying project is not located in a State in which the Bureau of Reclamation has jurisdiction, the Secretary shall, by not later than 45 days after the date of receipt of an application for the qualifying project—

(A) designate an alternate agency within the Department of the Interior to serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct the qualifying project; or

(B) in consultation with the heads of other Federal departments and agencies, identify the appropriate lead agency for the qualifying project.

(c) Cooperating Agencies.—

(1) FEDERAL DEPARTMENTS AND AGENCIES.—The lead agency designated under paragraph (1) or (2) of subsection (b) shall—

(A) as soon as practicable after receipt of an application for a qualifying project, identify any Federal department or agency that may have jurisdiction over a review, permit, license, approval, or decision required for the qualifying project under applicable Federal laws (including regulations); and

(B) as soon as practicable after the date of identification under subparagraph (A)—

(i) notify each applicable department or agency of the identification; and

(ii) designate the department or agency as a cooperating agency, unless the department or agency—

(I) has no jurisdiction or authority with respect to the qualifying project;

(II) has no expertise or information relevant to the qualifying project or any review, permit, license, approval, or decision associated with the qualifying project; or

(III) does not intend—

(aa) to submit comments regarding the qualifying project; or

(bb) to conduct any review of the qualifying project or make any decision with respect to the qualifying project in a manner other than in cooperation with the Bureau of Reclamation.

(2) STATES.—A State in which a qualifying project is proposed to be carried out may elect, consistent with Federal and State law, to participate as a cooperating agency, if the lead agency designated for the proposed qualifying project under paragraph (1) or (2) of subsection (b) determines that the applicable agency of the State—

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(A) has jurisdiction over the qualifying project under applicable Federal or State law;

(B) is required to conduct or issue a review of the qualifying project; and

(C) is required to make a determination regarding issuing a permit, license, or approval of the qualifying project.

(d) Duties of Lead Agency.—

(1) IN GENERAL.—Not later than 30 days after the date of receipt of an application for approval of a qualifying project, the lead agency shall hold a meeting among the applicant, the lead agency, and all cooperating agencies to establish, with respect to the qualifying project, all applicable—

(A) requirements;

(B) review processes; and

(C) stakeholder responsibilities.

(2) SCHEDULE.—

(A) ESTABLISHMENT.—Not later than 30 days after the date of the meeting under paragraph (1), the lead agency, in consultation with the attendees of the meeting, shall establish a schedule for completion of the qualifying project, taking into consideration, among other relevant factors—

(i) the responsibilities of cooperating agencies under applicable laws and regulations;

(ii) the resources available to the cooperating agencies and non-Federal project stakeholders;

(iii) the overall size and complexity of the qualifying project;

(iv) the overall schedule for, and cost of, the qualifying project; and

(v) the sensitivity of the natural and historic resources that may be affected by the qualifying project.

(B) REQUIREMENTS.—On establishment of a schedule for a qualifying project under subparagraph (A), the lead and cooperating agencies shall—

(i) to the maximum extent practicable, adhere to the schedule; and

(ii) submit to the Committee on Environment and Public Works of the Senate and the Committee on Natural Resources of the House of Representatives on a semiannual basis a report describing any delays in the schedule, including a description of—

(I) the reasons for the delay;

(II) the actions that the lead and cooperating agencies will take to minimize the delay; and

(III) a revised schedule for the qualifying project, if applicable.

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(e) Environmental Reviews.—

(1) SINGLE, UNIFIED ENVIRONMENTAL REVIEW DOCUMENT.—

(A) IN GENERAL.—The lead agency with respect to a qualifying project, in consultation with appropriate stakeholders and cooperating agencies, shall determine whether a single, unified environmental review document relating to the qualifying project is sufficient to comply with applicable Federal laws (including regulations), including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) ACTION ON DECLINATION.—If, after consultation under subparagraph (A), a lead agency determines not to adopt a single, unified environmental review document relating to a qualifying project—

(i) the lead agency shall—

(I) document the reasons for the determination; and

(II) submit to the Secretary a report describing those reasons; and

(ii) the Secretary may require the adoption of a single, unified document at the discretion of the Secretary, based on good cause.

(2) ENVIRONMENTAL ASSESSMENT.—Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental assessment is sufficient to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental assessment shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental assessment by not later than 180 days after the end of the period for public comments on the draft environmental assessment.

(3) ENVIRONMENTAL IMPACT STATEMENT.— Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental impact statement is required to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental impact statement shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental impact statement by not later than 1 year after the end of the period for public comments on the draft environmental impact statement.

(4) MODIFICATION OF SCHEDULE.—In carrying out paragraphs (2) and (3),

(A) the lead agency with respect to a qualifying project may modify the schedule of the qualifying project if:

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(i) the Federal lead agency can demonstrate good cause, such as the need for additional time to comply with other statutory or regulatory requirements other than the National Environmental Policy Act of 1969, and the head of that agency submits to Congress a written determination describing the cause and reasons for the modification no less than 30 days before the original scheduled deadline; or

(ii) the Federal lead agency, the project sponsor, the joint lead agency (as applicable), and all participating and cooperating agencies agree to such modification.

(B) no modification pursuant to subparagraph (4)(A) shall postpone the issuance of a final environmental assessment by more than 1 year, or a final environmental impact statement by more than 2 years, unless the conditions under (4)(A)(i) or (4)(A)(ii) are met.

(C) If a modification occurs pursuant to this paragraph, the Federal lead agency shall issue and adhere to the revised schedule unless the conditions under (4)(A)(i) or (4)(A)(ii) are met.

(5) REQUIREMENTS.—On commencement of the environmental review process under this subsection, the lead and cooperating agencies shall, as soon as practicable—

(A) make available to all stakeholders of the qualifying project information regarding—

(i) the environmental and socioeconomic resources located within the area of the qualifying project; and

(ii) the general locations of the alternatives under consideration; and

(B) identify any issues of concern regarding the potential environmental or socioeconomic effects of the qualifying project, including any issues that could substantially delay or prevent an agency from granting a permit or other approval that is needed for a study relating to the qualifying project.

(f) Concurrent Review Actions.—

(1) IN GENERAL.—Any review, analysis, permit, license, approval, or decision regarding a qualifying project made by a Federal, State, or local government agency shall be—

(A) conducted, to the maximum extent practicable, concurrently with any other applicable government agency; and

(B) incorporated in the schedule for the qualifying project under subsection (d)(2).

(2) REQUIREMENT.—The lead and cooperating agencies for a qualifying project shall formulate and implement administrative, policy, and procedural mechanisms to enable adherence to the schedule for the qualifying project in a timely, coordinated, and environmentally responsible manner.

(3) GUIDANCE.—The Secretary shall issue guidance regarding the use of programmatic approaches to carry out the environmental review process that, to the maximum extent practicable—

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(A) eliminates repetitive discussions of the same issues;

(B) focuses on the actual issues ripe for analysis at each level of review;

(C) establishes a formal process for coordinating with participating and cooperating agencies, including the establishment of a list of all data required to carry out an environmental review process; and

(D) complies with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and all other applicable laws and regulations.

(g) Administrative Record and Data Management.—

(1) IN GENERAL.—The lead agency shall—

(A) be responsible for compiling the administrative record of the information used as the basis for decisions relating to a qualifying project; and

(B) to the maximum extent practicable and consistent with Federal law, make available all data regarding the qualifying project in a format that is accessible via electronic means for project stakeholders, cooperating agencies, and the public.

(2) REPORTS.—Not less frequently than once each year, the lead agency shall submit a progress report regarding a qualifying project to project stakeholders, cooperating agencies, the Committee on Environment and Public Works of the Senate, and the Committee on Natural Resources of the House of Representatives.

(h) Participation by Non-Federal Project Sponsors.—

(1) APPLICATION TO SERVE AS COOPERATING AGENCY.—A non-Federal sponsor of a qualifying project may submit to the lead Secretary an application to serve as a cooperating agency of the qualifying project for purposes of preparing any necessary documents relating to the qualifying project, including an environmental review, if—

(A) the non-Federal sponsor is a public agency as defined under the laws of the state in which the agency is located;

(B) the non-Federal sponsor agrees to adhere to—

(i) all required Federal laws (including regulations) in carrying out the qualifying project; and

(ii) all decisions regarding the qualifying project that have been agreed on by other stakeholders of the qualifying project; and

(C) the applicable lead agency certifies that participation by the non-Federal sponsor will not inappropriately bias the qualifying project in favor of the non-Federal sponsor.

(2) FUNDS.—Any funds contributed by a non-Federal sponsor to a qualifying project—

(A) may be accepted to maintain or accelerate progress on the qualifying project, subject to the condition that the Secretary shall—

(i) review the use of the funds; and

(ii) certify in writing that the funds—

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(I) are used solely to complete applicable environmental reviews; and

(II) do not unduly influence any permit or approval decision regarding the
qualifying project; and

(B) shall be applied toward the non-Federal cost-share of the qualifying project.

(i) Applicability to Calfed Storage Studies.—For any feasibility study referred to in section
401(3), this section shall apply to all activities to be carried out under the study on or after the
date of enactment of this Act that would lead to congressional authorization of an applicable
project for construction.

SEC. 405. DAM SAFETY PROJECTS WITH INCREASED STORAGE COMPONENT.

(a) Additional Project Benefits.—The Reclamation Safety of Dams Act of 1978 is amended—

(1) in section 3 (43 U.S.C. 507), by striking “Construction” and inserting “Except as
provided in section 5B, construction”; and

(2) by inserting after section 5A (43 U.S.C. 509a) the following:

“SEC. 5B. ADDITIONAL PROJECT BENEFITS.

“(a) In General.—Notwithstanding section 3, if the Secretary, in the judgment of the
Secretary, makes a determination described in subsection (b), the Secretary is authorized to
develop any additional project benefit—

“(1) through the construction of new or supplementary works on a project in conjunction
with the activities carried out by the Secretary pursuant to section 2; and

“(2) subject to the conditions described in the feasibility study relating to the project.

“(b) Description of Determination.—A determination referred to in subsection (a) is a
determination by the Secretary that—

“(1) an additional project benefit, including but not limited to additional conservation
storage capacity, is—

“(A) necessary; and

“(B) in the interests of the United States; and

“(2) the project [benefit] proposed to be carried out is—

“(A) feasible; and

“(B) not inconsistent with the purposes of this Act.

“(c) Requirements.—The costs associated with developing an additional project benefit under
this section shall be—

“(1) allocated to the authorized purposes of the structure, provided that agreement on
project benefits and allocable costs is reached among state and federal funding agencies;
and

Commented [A38]: The Administration has concerns with
amending the Safety of Dams Act. See suggested technical
assistance below.

Commented [A39]: Allocating the costs of additional storage
benefits among all authorized purposes potentially has the taxpayer
supporting a portion of the cost of additional storage. Any
additional costs of additional storage should be paid by those
receiving the benefit. Stand ready to work with the bill author to
address these concerns.

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“(2) repaid in accordance with all applicable provisions of Federal reclamation law (the Act of June 17, 1902 (32 Stat. 388, chapter 1093), and Acts supplemental to and amendatory of that Act (43 U.S.C. 371 et seq.).”.

(b) San Luis Reservoir Expansion.—Section 103(f)(1)(A) of Public Law 108–361 (118 Stat. 1694) is amended—

(1) by striking “Funds” and inserting the following:

“(i) IN GENERAL.—Funds”; and

(2) by adding at the end the following:

“(ii) ENVIRONMENTAL REVIEWS AND FEASIBILITY STUDY.—The Commissioner of Reclamation shall submit [to Congress]—

“(I) an expansion draft environmental impact statement and feasibility study relating to the San Luis Reservoir by not later than April 1, 2016; and

“(II) a final environmental impact statement relating to the San Luis Reservoir by not later than December 31, 2016.”.

SEC. 406. UPDATING WATER OPERATIONS MANUALS FOR NON-FEDERAL PROJECTS.

(a) Definitions.—In this section:

(1) NON-FEDERAL PROJECT.—

(A) IN GENERAL.—The term “non-Federal project” means a non-Federal reservoir project operated for flood control in accordance with rules prescribed by the Secretary pursuant to section 7 of the Act of December 22, 1944 (commonly known as the “Flood Control Act of 1944”) (58 Stat. 890, chapter 665).

(B) EXCLUSION.—The term “non-Federal project” does not include any dam or reservoir owned by—

(i) the Bureau of Reclamation; or

(ii) the Corps of Engineers.

(2) OWNER.—The term “owner” with respect to a non-Federal project, does not include—

(A) the Secretary;

(B) the Secretary of the Interior; or

(C) the head of any other Federal department or agency, notwithstanding any Federal monetary contribution made toward the construction cost of the relevant non-Federal project, if the contribution is predicated on flood control or other specific benefit.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Army.

(b) Review by Secretary.—

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(1) IN GENERAL.—Not later than 1 year after the date of receipt of a request from the owner of a non-Federal project, the Secretary, in consultation with the owner, shall review the water control manual and flood control rule curves and any operational or structural modifications proposed by the owner, including the use of improved weather forecasting and run-off forecasting methods, to enhance the existing purposes of the non-Federal project.

(2) REPORT.—Not later than 90 days after the date of completion of a review under paragraph (1), the Secretary shall submit to the owner of the applicable non-Federal project a report describing the results of the review.

(3) PRIORITY.—In carrying out of this subsection, the Secretary shall give priority to review and revision of water control manuals and flood control rule curves for any non-Federal project—

(A) that is located in a State in which a drought emergency has been declared during the 1-year period ending on the date of review by the Secretary;

(B) the owner of which has submitted to the Secretary a formal request to review or revise the operations manual or rule curves to accommodate new watershed data or proposed project modifications or operational changes;

(C) the water control manual and hydrometeorological information establishing the flood control rule curves of which have not been revised during the 20-year period ending on the date of review by the Secretary;

(D) with respect to which a completed probable maximum flood analysis or other data indicates that revisions of the project control manual or rule curves are likely to enhance water supply benefits and flood control operations; and

(E) modifications or operational changes proposed by the owner of which are likely to enhance water supply benefits and flood control operations.

(4) NON-FEDERAL CONTRIBUTIONS.—The Secretary may accept non-Federal funds for all or a portion of the cost of carrying out a review or revision of water control manuals and rule curves for non-Federal projects under this subsection.

SEC. 407. CENTRAL VALLEY PROJECT.

(a) Cooperative Agreements.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, to determine the feasibility of an agreement for long-term use of an existing or expanded non-Federal storage or conveyance facility to augment Federal water supply, ecosystem, and operational flexibility benefits, the Secretary shall offer to enter into cooperative agreements with non-Federal entities to provide replacement water supplies for drought relief for—

(A) contractors of the Central Valley Project (as defined in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706));

(B) units of the National Wildlife Refuge System;

(C) State wildlife areas; and

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(D) private wetland areas.

(2) REQUIREMENTS.—A cooperative agreement under this subsection shall—

(A) include the purchase of storage capacity in non-Federal facilities from willing sellers; and

(B) provide reimbursement for the temporary use of available capacity in existing above-ground, off-stream storage and associated conveyance facilities owned by local water agencies.

(b) Report.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Chief of the National Wildlife Refuge System and contractors of the Central Valley Project a report describing the feasibility of the agreement for long-term use described in subsection (a)(1).

TITLE V—WATER RIGHTS PROTECTIONS

SEC. 501. PROTECTIONS FOR STATE WATER PROJECT CONTRACTORS.

If, as a result of the application of this Act, the California Department of Fish and Wildlife:

(a) revokes the consistency determination pursuant to California Fish and Game Code section 2080.1;

(b) amends or issues a new consistency determination pursuant to California Fish and Game Code section 2080.1 in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion; or

(c) requires take authorization under section 2081 for operation of the State Water Project in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion,

the water supply benefits of such action by the California Department of Fish and Wildlife accruing to the Central Valley Project, if any, shall be shared equally with the State Water Project.

SEC. 502. AREA OF ORIGIN PROTECTIONS.

(a) The Secretary of the Interior (Secretary) is directed in the operation of the Central Valley Project (CVP) to adhere to California's water rights laws governing water rights priorities by honoring water rights senior to those held by the United States for operation of the CVP, regardless of the source of priority, including any appropriative water rights initiated prior to December 19, 1914, as well as water rights and other priorities perfected or to be perfected pursuant to California Water Code Part 2 of Division 2. Article 1.7 (commencing with section

Commented [A40]: We have not had a chance to fully analyze this Title. We will however continue to evaluate this section and reserve our rights with respect to the ability to provide technical feedback at that time.

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1215 of Chapter 1 of Part 2 of Division 2, Sections 10505, 10505.5, 11128, 11460, 11461, 11462 and 11463, and Sections 12200 to 12220, inclusive).

(b) Any action that requires that diversions be bypassed or that involves the release of water from any CVP water storage facility taken by the Secretary or the Secretary of the Department of Commerce pursuant to Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531, et seq.) shall be applied in a manner that is consistent with water rights priorities established by California law.

SEC. 503. NO REDIRECTED ADVERSE IMPACTS.

The Secretary shall ensure that, except as otherwise provided for in a water service or repayment contract, actions taken in compliance with legal obligations imposed pursuant to or as a result of this Act, including, but not limited to, such actions under the Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.) and other federal laws, shall not cause redirected adverse water supply or fiscal impacts to those within the Sacramento River Watershed or the State Water Project.

SEC. 504. EFFECT ON STATE LAWS.

Nothing in this Act preempts any State law in effect on the date of enactment of this Act, including area of origin and other water rights protections.

TITLE VI—MISCELLANEOUS

SEC. 601. AUTHORIZED SERVICE AREA.

(a) In General.—The authorized service area of the Central Valley Project authorized under the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) shall include the area within the boundaries of the Kettleman City Community Services District, California, as in existence on the date of enactment of this Act.

(b) Long-term Contract.—

(1) IN GENERAL.—Notwithstanding the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) and subject to paragraph (2), the Secretary of the Interior, in accordance with the reclamation laws, shall enter into a long-term contract with the Kettleman City Community Services District, California, under terms and conditions mutually agreeable to the parties, for the delivery of up to 900 acre-feet of Central Valley Project water for municipal and industrial use.

(2) LIMITATION.—Central Valley Project water deliveries authorized under the contract entered into under paragraph (1) shall be limited to the minimal quantity necessary to meet the immediate needs of the Kettleman City Community Services District, California, in the event that local supplies or State Water Project allocations are insufficient to meet those needs.

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(c) Permit.—The Secretary shall apply for a permit with the State for a joint place of use [for water deliveries authorized under the contract entered into under subsection (b)? with respect to the expanded service area under subsection (a)?], consistent with State law.

(d) Additional Costs.—If any additional infrastructure, water treatment, or related costs are needed to implement this section, those costs shall be the responsibility of the non-Federal entity.

SEC. 602. RESCHEDULED WATER.

(a) In General.—In connection with operations of the Central Valley Project, California, if the San Luis Reservoir does not fill by the last day of February of any year, the Secretary of the Interior shall permit any entity with an agricultural water service or repayment contract for the delivery of water from the Delta Division or the San Luis Unit to reschedule into the immediately following contract year (March 1 through the last day of February) any unused Central Valley Project water previously allocated for irrigation purposes.

(b) Apportionment.—If water remaining in Federal storage in San Luis Reservoir on the last day of February of any year is insufficient to meet all rescheduling requests under subsection (a), the Secretary of the Interior shall, based on contract quantity, apportion among all contractors that request to reschedule water all water remaining in San Luis Reservoir on the last day of February of the applicable year.

(c) Availability of Additional Water.—The Secretary shall make all reasonable efforts to make available additional rescheduled water, if the efforts do not interfere with the Central Valley Project operations in the contract year for which Central Valley Project water has been rescheduled.

SEC. 603. FISHERIES DISASTER DECLARATION.

[TO BE SUPPLIED.]

SEC. 604. OVERSIGHT BOARD FOR RESTORATION FUND.

(a) Report; Advisory Board.—Section 3407 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4726) is amended by adding at the end the following:

“(g) Report on Expenditure of Funds.—

“(1) IN GENERAL.—For each fiscal year, the Secretary, in consultation with the Advisory Board, shall submit to Congress a plan for the expenditure of all of the funds deposited into the Restoration Fund during the preceding fiscal year.

“(2) CONTENTS.—The plan shall include an analysis of the cost-effectiveness of each expenditure.

“(h) Advisory Board.—

“(1) ESTABLISHMENT.—There is established the Restoration Fund Advisory Board (referred to in this section as the ‘Advisory Board’), which shall be composed of 14 members appointed by the Secretary.

Commented [A41]: Language has not been provided and the Administration is unable to make recommendations.

Commented [A42]: Still reviewing and per note below reserve the right to provide additional feedback.

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“(2) MEMBERSHIP.—

“(A) IN GENERAL.—The Secretary shall appoint members to the Advisory Board that represent the various Central Valley Project stakeholders, of whom—

“(i) 3 members shall be agricultural users of the Central Valley Project;

“(ii) 2 members shall be municipal and industrial users of the Central Valley Project;

“(iii) 3 members shall be power contractors of the Central Valley Project;

“(iv) 1 member shall be a representative of a federal wildlife refuge that contracts for Central Valley Project water supplies with the Bureau of Reclamation;

“(v) 1 member shall represent nongovernmental organizations involved in the protection and restoration of California fisheries;

“(vi) 1 member shall represent the commercial fishing industry;

“(vii) 1 member shall represent the recreational fishing industry; and

“(viii) 2 members shall be appointed at the discretion of the Secretary.

“(B) OBSERVER.—The Secretary and the Secretary of Commerce may each designate a representative to act as an observer of the Advisory Board.

“(C) CHAIRMAN.—The Secretary shall appoint 1 of the members described in subparagraph (A) to serve as Chairman of the Advisory Board.

“(3) TERMS.—The term of each member of the Advisory Board shall be 4 years.

“(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

“(5) Vacancies.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(C) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

“(6) Removal –A Member of the Panel may be removed from office by the Secretary of the Interior.

“(7) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act.”

Commented [A43]: There may be unintended consequences to waving FACA. May want to consider some of the organizational/structural aspects of FACA.

“(8) DUTIES.—The duties of the Advisory Board are—

“(A) to meet not less frequently than semiannually to develop and make recommendations to the Secretary regarding priorities and spending levels on projects and programs carried out under this title;

“(B) to ensure that any advice given or recommendation made by the Advisory Board reflects the independent judgment of the Advisory Board;

“(C) not later than December 31, 2015, and annually thereafter, to submit to the Secretary and Congress the recommendations under subparagraph (A); and

“(D) not later than December 31, 2015, and biennially thereafter, to submit to Congress a report that details the progress made in achieving the actions required under section 3406.

“(9) ADMINISTRATION.—With the consent of the appropriate agency head, the Advisory Board may use the facilities and services of any Federal agency.”

“(10) Cooperation and Assistance.—

(A) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(B) Space and Assistance.—The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 605. WATER OPERATIONS REVIEW PANEL.

(a) Establishment.—There is established a panel to be known as the “Water Operations Review Panel”.

(b) Membership.—

(1) COMPOSITION.—The Panel shall be composed of 5 members appointed by the Secretary of the Interior, in consultation with the Secretary of Commerce, of whom—

(A) 1 member shall be a former State elected official, who shall be the Chairperson of the Panel;

(B) 2 members shall be fisheries biologists, of whom—

(i) 1 member shall have expertise in Delta smelt; and

(ii) 1 member shall have expertise in salmonids; and

(C) 2 members shall have been engineers with substantial expertise in water operations.

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(2) RECOMMENDATIONS. —The Secretary of the Interior shall consider the recommendations

(A) of the Governor of the State for the member appointed under subparagraph (1)(A);

(B) of the Director of the California Department of Water Resources for one of the members appointed under subparagraph (1)(C).

(3) PROHIBITION ON FEDERAL GOVERNMENT EMPLOYMENT.—For at least three years prior to appointment to the Panel, an individual appointed to the Panel under paragraph (1) shall not have been an employee of the Federal Government.

(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

(c) Term; Vacancies.—

(1) TERMS.—A member of the Panel shall be appointed for a term of 3 years, except that, with respect to the members first appointed under this section—

(A) the Chairperson shall be appointed for a term of 3 years;

(B) of the members appointed under subsection (b)(1)(B)—

(i) 1 member shall be appointed for a term of 1 year; and

(iii) 1 member shall be appointed for a term of 2 years;

(C) of the members appointed under subsection (b)(1)(C)—

(i) 1 member shall be appointed for a term of 1 year; and

(ii) 1 member shall be appointed for a term of 2 years.

(2) VACANCIES.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(3) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

(d) Removal. —A Member of the Panel may be removed from office by the Secretary of the Interior.

(e) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act

(f) Duties.

Commented [A44]: There may be unintended consequences to waving FACA. May want to consider some of the organizational/structural aspects of FACA.

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(1) Assessment and Report on Agencies' Operational Decisions under this Act.—

(A) IN GENERAL.—No later than November 30, 2015, and annually no later than November 30 thereafter, the Panel shall report an assessment of the agencies' operational decisions under this Act and recommendations for the prospective implementation of this Act to the following Congressional committees:

- (i) Senate Committee on Environment and Public Works;
- (ii) Senate Appropriations Subcommittee on Energy and Water Development;
- (iii) House Natural Resources Committee; and
- (iv) House Appropriations Subcommittee on Energy and Water Development.

(B) RETROSPECTIVE ASSESSMENT.—In making the retrospective assessment under paragraph (1), the Panel shall review and evaluate the Director of the Fish and Wildlife Service, Administrator of NOAA Fisheries, and Commissioner of Reclamation's —

- (i) decisions in implementing this Act and other Federal laws applicable to the operations of the Central Valley Project and the State Water Project;
- (ii) compliance with the Endangered Species Act in relation to operations of the Central Valley Project and the State Water Project; and
- (iii) efforts to minimize water supply disruptions while complying with the Endangered Species Act and this Act.

(C) PROSPECTIVE RECOMMENDATIONS.—The Panel shall make recommendations for prospective actions and potential actions warranting further study to better achieve the purposes of this Act and the Endangered Species Act as applied to the operations of the Central Valley Project and the State Water Project, including proposals—

- (i) that in combination, both increase the survival of listed species and increase water supplies for the Central Valley Project and the State Water Project;
- (ii) to increase the survival of listed fish species with little to no adverse effects on water supplies for the Central Valley Project and the State Water Project;
- (iii) to increase such water supplies with little to no adverse effects on the survival of listed fish species; and
- (iv) that respond to the annual Delta Science Program Independent Review Panel reports on the Long-term Operations Opinions.

(2) Submission of Comments and Proposals to Panel.—

(A) IN GENERAL.—In preparing the reports under subsections (a) and (b), the Panel shall invite comments and proposals from any interested person.

(B) SCHEDULE.—The Panel shall publish a schedule for receipt of comments and proposals under paragraph (1), together with instructions for how to submit the comments and proposals.

(f) Cooperation and Assistance. ---

Commented [A45]: Compared to what? Their 100% allocations? The average of the last 5 years? Allocation from the same water year type in the past?

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(1) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of Commerce and the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(2) Space and Assistance --- The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 606. CONTINGENCY IN EVENT OF CONTINUING
RESOLUTION FOR FISCAL YEAR 2015.

If a resolution providing continuing appropriations for the Fish and Wildlife Service or the National Marine Fisheries Service for fiscal year 2015 is enacted for any date on or after January 1, 2015, and the Secretaries have consulted with the California Department of Water Resources, Central Valley Project and State Water Project contractors, and the Interagency Ecological Program about any possible funding shortfall, the deadlines that apply to each respective Secretary, or agency, contained in sections _____ shall be extended by the number of days such resolution providing continuing appropriations applied to each agency.

SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT

Commented [A46]: Suggested Alternative Language we have previously provided.

(1) IN GENERAL.—In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such the severe drought remains in effect as determined by the United States Drought Monitor, the Secretaries shall seek to enhance operational flexibility in the operations of the CVP and the State Water Project to alleviate the adverse effects of the drought on water supplies, imperiled species, and water quality through the development of a 2015 Drought Operations Plan. This 2015 Drought Operations Plan, consistent will applicable law, will seek to provide the maximum quantity of water supplies possible to Central Valley Project agricultural, municipal and industrial, and refuge water service and repayment contractors, State Water Project contractors, and any other locality or municipality in the State, by approving, consistent with applicable federal and state laws (including regulations) and protection of public health and safety, projects and operations to provide additional water supplies as quickly as possible based on the best scientific information available to address the emergency conditions.

(a) Preparation of a Drought Operations Plan - The Secretaries shall develop and implement a Drought Operations Plan by March 1 that maximizes water deliveries for CVP and SWP contractors while also meeting all applicable legal standards, including those established in this Act. The Secretaries shall be authorized to make adjustments to the plan during the water year based on changes in hydrology or as conditions warrant. The Secretaries shall be authorized to

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make adjustments consistent with applicable law and regulations prior to March 1st, as necessary to meet the purposes of this section.

(b) Plan Content. —In carrying out subsection (a), the Secretaries shall, consistent with applicable laws and regulations,

- i. Evaluate new information on species distribution through enhanced monitoring and/or modeling;
- ii. Identify operations, with accompanying modelling, necessary to preserve cold water in reservoirs for salmon needs while maintaining Delta needs;
- iii. Identify modification to Delta cross channel gate operations, to address adverse effects of operations on water quality or fish migrations as per Operations in the 2014 Drought Operations Plan;
- iv. Encourage the CVP to vary the export/info ratio as per D-1641 Operations in the 2014 Drought Operations Plan;
- v. Analyze potential operational scenarios during early season storms that may occur prior to January 1, 2015, including a scenario for -7500 cfs average OMR during December 2014, and alternative scenarios that might be implemented in the event environmental conditions or fish distribution indicate that the thresholds and criteria triggering Component 1, Action 1 of the 2008 FWS operations BiOp might soon be met.
- vi. Monitor and act upon the declaration of critically dry years for purposes of enabling the use of the San Joaquin April-May 1:1 inflow/export ratio to enhance early spring exports;
- vii. Consider, through the NMFS adaptive management 2009 Biop provisions, adjustment to the San Joaquin I:E ratio to provide for San Joaquin origin water transfers to be exported at a 1:1 ratio irrespective of water year type, including any additional monitoring, operational adjustments or offsets that may be needed to conserve species;
- viii. Consider, through the NMFS adaptive management 2009 Biop provisions, adjustment of the January 1st on-set of -5000 OMR to reflect real-time migration information on Winter-run Chinook salmon;
- ix. Identify any temporary emergency barriers that may be needed for purposes of salinity control; and
- x. Identify other actions necessary to conserve species, including additional monitoring, hatchery and/or habitat actions.

(2) APPLICATION.— In addition to the Central Valley Project, paragraph (1) also applies to projects or operations involving the Klamath Project if the projects or operations would benefit Federal water service and repayment contractors in California.

(b) Limitation.—Nothing in this section allows agencies to approve projects—

(1) that would otherwise require congressional authorization; or

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1 [\(2\) without following applicable law and regulations.](#)

2

From: Tom Birmingham

Sent: Sunday, September 28, 2014 4:13 PM

To: 'Watts, John (Feinstein)'; DBernhardt@BHFS.com; RPatterson@mw dh2o.com; BBurman@mw dh2o.com

CC: 'Yeung, Felix (Feinstein)'; 'Peterson, James (Feinstein)'

Subject: RE: Administration comments and technical assistance on draft language

I will be available. Please let me know what time.

-----Original Message-----

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]

Sent: Sunday, September 28, 2014 3:55 PM

To: 'tbirmingham@westlandswater.org'; DBernhardt@BHFS.com'; RPatterson@mw dh2o.com'; BBurman@mw dh2o.com'

Cc: Yeung, Felix (Feinstein); Peterson, James (Feinstein)

Subject: Administration comments and technical assistance on draft language

Can we discuss the attached comments and technical assistance between 12 and 2 eastern time tomorrow (between 9 and 11 pacific time)?

The agencies provided the below comments when they forwarded the attached document:

"Per our conversations, please find attached our latest round of comments and technical assistance to the draft you provided us last Friday. As you'll see, there a couple of sections we continue need more time to review. These are consistent with the phone conversations you have had with NOAA, DOI and CEQ the last couple of days. If you have questions on the feedback, don't hesitate to let us know.

In particular, we think we've made good progress on Sec 309. Note, we qualified some sections, "up to -7500" and "up to 21 days" to avoid concerns about litigation and keep any pumping in the world of what may actually be feasible. These qualifiers were added in good faith to get at your boss' stated goals while at the same time preserving some of the flexibility agencies think they need."

From: Patterson,Roger K

Sent: Sunday, September 28, 2014 4:15 PM

To: Tom Birmingham

CC: Watts, John (Feinstein); DBernhardt@BHFS.com; Burman,Brenda W; Yeung, Felix (Feinstein); Peterson, James (Feinstein)

Subject: Re: Administration comments and technical assistance on draft language

So will I. Shall we do at 9:00. Pacific?

Can use 213-217-7888. 7781#

> On Sep 28, 2014, at 4:12 PM, Tom Birmingham <tbirmingham@westlandswater.org> wrote:

>

> I will be available. Please let me know what time.

>

> -----Original Message-----

> From: Watts, John (Feinstein) [<mailto:John.Watts@feinstein.senate.gov>]

> Sent: Sunday, September 28, 2014 3:55 PM

> To: 'tbirmingham@westlandswater.org'; 'DBernhardt@BHFS.com'; 'RPatterson@mwdh2o.com'; 'BBurman@mwdh2o.com'

> Cc: Yeung, Felix (Feinstein); Peterson, James (Feinstein)

> Subject: Administration comments and technical assistance on draft language

>

> Can we discuss the attached comments and technical assistance between 12 and 2 eastern time tomorrow (between 9 and 11 pacific time)?

>

> The agencies provided the below comments when they forwarded the attached document:

>

> "Per our conversations, please find attached our latest round of comments and technical assistance to the draft you provided us last Friday. As you'll see, there a couple of sections we continue need more time to review. These are consistent with the phone conversations you have had with NOAA, DOI and CEQ the last couple of days. If you have questions on the feedback, don't hesitate to let us know.

>

> In particular, we think we've made good progress on Sec 309. Note, we qualified some sections, "up to -7500" and "up to 21 days" to avoid concerns about litigation and keep any pumping in the world of what may actually be feasible. These qualifiers were added in good faith to get at your boss' stated goals while at the same time preserving some of the flexibility agencies think they need."

>

>

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From: Watts, John (Feinstein)

Sent: Sunday, September 28, 2014 4:24 PM

To: 'tbirmingham@westlandswater.org'; 'RPatterson@mwdh2o.com'; Yeung, Felix (Feinstein); 'BBurman@mwdh2o.com'; 'DBernhardt@BHFS.com'; Peterson, James (Feinstein)

Subject: Let's so our call at 9 am pacific tomorrow

Roger, can we use your call-in number?

From: Patterson,Roger K
Sent: Sunday, September 28, 2014 4:24 PM
To: Watts, John (Feinstein)
CC: tbirmingham@westlandswater.org; Yeung, Felix (Feinstein); Burman,Brenda W;
DBernhardt@BHFS.com; Peterson, James (Feinstein)
Subject: Re: Let's so our call at 9 am pacific tomorrow

> On Sep 28, 2014, at 4:23 PM, Watts, John (Feinstein) <John_Watts@feinstein.senate.gov> wrote:
>
> Roger, can we use your call-in number?

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From: Watts, John (Feinstein)

Sent: Monday, September 29, 2014 8:28 AM

To: 'Tom Birmingham'

CC: Bernhardt, David L.; Yeung, Felix (Feinstein)

Subject: Confidential: please see a couple of proposed edits to language attached

Attachments: language 9-29-14.docx

Tom,

For our call at noon, please see the attached documents and a couple of edits I would propose. Both of these address the duration of the legislation, which I think would be helpful for us to address in a proactive way:

- 1) A proposed new subsection 103(e)(5) on OMR management under a subsequent smelt biological opinion; and
- 2) A proposed new section 607 at the end of the draft legislation (before the agencies' proposed substitute for section 303).

I have also proposed a couple of other edits which we can discuss on the call.

I am going to call you briefly on a related manner in a few minutes.

Talk to you soon,

John

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Proposed Comments 9.28.2014 5:00 PM EST

Title: To provide drought relief in the State of California, and for other purposes.

General Comments

1. We continue to believe that priority should be placed on the development and implementation of a 2015 Drought Operations Plan that can implement changes in operations of the CVP and SWP to improve water supplies in a very serious drought year in a manner that is consistent with the ESA and other applicable law. See alternative to Sec. 303 at the end of the document previously provided.
2. As part of a 2015 Drought Plan, we recommend investing immediately in improvements in monitoring and data gathering in order to enable more precision in operations targeting reductions in negative fish impacts through “real time” operational triggers. To the extend authors of the bill can support this goal in the underlying bill text, we would appreciate it.
3. An unintended consequence of significant new legislative directives is that they pose serious risks of impeding the success of 2015 Drought Operations and by triggering another aggressive round of litigation that will impede flexibility. We appreciate efforts that have been made to reduce litigation risk; however, as noted below there are provisions that we believe invite potential litigation.
4. We recommend against permanent legislation on how the CVP and the ESA should relate, and in particular against locking into permanent law references to specific operating criteria that are tied to specific biological opinions that are highly likely to change over time as circumstances change. We recommend including expiration dates for those titles or sections that are drought-specific or operating criteria specific.
5. In many instances, we do not have the capacity to implement these new directives and continue with other pressing Administration priorities, like the top priority of 2015 drought operations, responding to the biological opinion remand and completing the BDCP. Enactment of these new requirements will significantly displace ongoing priorities.
6. We have questions about some of the findings that we have been unable to confirm at this time due to uncertainty surrounding the source of the data. We will work on confirming these findings early next week but it would be helpful to understand the source of the information on the comments we have flagged. We expressly reserve the right to comment further on the findings at a later time once the source information is determined.

We provide the following technical observations on the legislative text.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

- (a) Short Title.—This Act may be cited as the “California Drought Relief Act of 2014”.
- (b) Table of Contents.—The table of contents of this Act is as follows:

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1 Sec.1.Short title; table of contents.

2 Sec.2.Findings.

3 Sec.3.Definitions.

4 **TITLE I—ADJUSTING DELTA SMELT MANAGEMENT**
5 **BASED ON INCREASED REAL-TIME MONITORING AND**
6 **UPDATED SCIENCE**

7 Sec.101.Definitions.

8 Sec.102.Revise incidental take level calculation to reflect new science.

9 Sec.103.Factoring increased real-time monitoring and updated science into delta smelt
10 management.

11 **TITLE II—ENSURING SALMONID MANAGEMENT IS**
12 **RESPONSIVE TO NEW SCIENCE**

13 Sec.201.Definitions.

14 Sec.202.Required scientific studies.

15 Sec.203.Process for ensuring salmonid management is responsive to new science.

16 Sec.204.Pilot program to protect native anadromous fish in the Stanislaus River.

17 Sec.205.CALFED invasive species pilot projects in the Sacramento-San Joaquin Bay Delta and
18 its tributaries.

19 Sec.206.Mark fishery and harvest management.

20 Sec.207.New actions to benefit Central Valley salmonids.

21 **TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT**
22 **RELIEF**

23 Sec.301.Findings.

24 Sec.302.Definitions.

25 Sec.303.Operational flexibility in times of drought.

26 Sec.304.Operation of cross-channel gates.

27 Sec.305.Flexibility for export/inflow ratio.

28 Sec.306.Emergency environmental reviews.

29 Sec.307.Prioritizing State revolving funds during droughts.

30 Sec.308.Increased flexibility for regular project operations.

31 Sec.309.Temporary operational flexibility for first few storms of 2014-2015 water year.

1 Sec.310.Expediting water transfers.

2 Sec.311.Warren Act contracts. [PLACEHOLDER]

3 Sec.312.Additional Warren Act contracts. [PLACEHOLDER]

4 TITLE IV—INCREASING WATER STORAGE

5 Sec.401.Findings.

6 Sec.402.CalFed storage feasibility studies.

7 Sec.403.Water storage project construction.

8 Sec.404.Other storage feasibility studies.

9 Sec.405.Dam safety projects with increased storage component.

10 Sec.406.Updating water operations manuals for non-Federal projects.

11 Sec.407.Central Valley Project.

12 TITLE V—WATER RIGHTS PROTECTIONS

13 Sec.501.Protections for State water project contractors.

14 Sec.502.Area of origin protections.

15 Sec.503.No redirected adverse impacts.

16 Sec.504.Effect on State laws.

17 TITLE VI—MISCELLANEOUS

18 Sec.601.Authorized service area.

19 Sec.602.Rescheduled water.

20 Sec.603.Fisheries disaster declaration.

21 Sec.604.Oversight board for Restoration Fund.

22 Sec.605.Water operations review panel.

23 Sec.606.Contingency in event of continuing resolution for fiscal year 2015.

24

25 SEC. 2. FINDINGS.

26 Congress finds that—

27 (1) As established in the Proclamation of a State of Emergency issued by the Governor of
28 the State on January 17, 2014, the State is experiencing record dry conditions;

29 (2) Extremely dry conditions have persisted in the State since 2012, and the drought
30 conditions are likely to persist into the future;

31 (3) As of September 2014, the National Weather Service’s forecast does not show a high

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1 likelihood of the State experiencing ~~significant~~ above normal precipitation for the remainder
2 of the calendar year.

3 (4) The water supplies of the State are at record-low levels, as indicated by the fact that
4 all major Central Valley Project reservoir levels were at or below 40 percent of capacity as
5 of September 11, 2014;

6 (5) The lack of precipitation has been a significant contributing factor to the 6,091 fires
7 experienced in the State as of September 15, 2014, and which covered nearly 400,000 acres.

8 (6) According to a study released by the University of California, Davis in July 2014, the
9 drought has led to the fallowing of 428,000 acres of farmland, loss of \$810 million in crop
10 revenue, loss of \$203 million in dairy and other livestock value, and increased groundwater
11 pumping costs by \$454 million. The statewide economic costs are estimated to be \$2.2
12 billion, with over 17,000 seasonal and part-time agricultural jobs lost.

13 (7) CVPIA Level II ~~W~~water deliveries to refuges have also ~~declined~~ been reduced by
14 25% in the north of Delta region, and by 35% in the south of Delta region.

15 (8) Only one-sixth of the usual acres of rice fields are being flooded this fall, which leads
16 to a significant decline in habitat for migratory birds and an increased risk of disease at the
17 remaining wetlands due to overcrowding of such birds.

18 (9) The drought of 2013 through 2014 constitutes a serious emergency that poses
19 immediate and severe risks to human life and safety and to the environment throughout the
20 State;

21 (10) The serious emergency described in paragraph (4) requires—

22 (A) immediate and credible action that respects the complexity of the water system
23 of the State and the importance of the water system to the entire State; and

24 (B) policies that do not pit stakeholders against one another, which history shows
25 only leads to costly litigation that benefits no one and prevents any real solutions;

26 (11) Federal law (including regulations) directly authorizes expedited decisionmaking
27 procedures and environmental and public review procedures to enable timely and
28 appropriate implementation of actions to respond to the type and severity of the serious
29 emergency described in paragraph (4); and

30 (12) The serious emergency described in paragraph (4) fully satisfies the conditions
31 necessary for the exercise of emergency decisionmaking, analytical, and public review
32 requirements under—

33 (A) the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

34 (B) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.);

35 (C) water control management procedures of the Corps of Engineers described in
36 section 222.5 of title 33, Code of Federal Regulations (including successor
37 regulations); and

38 (D) the Reclamation States Emergency Drought Relief Act of 1991 (Public Law
39 102–250; 106 Stat. 53).

Commented [A1]: This looks a little low now. The smaller CVP reservoirs (Folsom and Millerton) are closer to 35%, but the bigger ones (Shasta, Nimbus, Trinity, San Luis) are down to 20-25%. DOI will work with bill author to help verify and, if appropriate, suggest revisions to language.

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(13) The 2008 smelt biological opinion and 2009 salmonid biological opinion contain reasonable and prudent alternatives to protect endangered-listed fish species from being harmed-jeopardized by operation of the Central Valley Project and State Water Project and to prevent adverse modification of designated critical habitat.

(14) The effect of those reasonable and prudent alternatives in the biological opinions may restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(15) Data on the difference between water demand and reliable water supplies for various regions south of the delta, including the San Joaquin Valley, indicate there is a significant annual gap between reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs within the South of Delta and Friant Division of the Central Valley Project and the State Water Project south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range and the demands of those areas. This gap varies depending on the methodology of the analysis performed, but can be represented in the following ways:

(a) For Central Valley Project South-of-Delta water service contractors, if it is assumed that a water supply deficit is the difference in the amount of water available for allocation versus the maximum contract quantity, particularly in more recent years, then the water supply deficits that have developed from 1992 to 2014 as a result of changes besides natural variations in hydrology during this timeframe range between 720,000 and 1,100,000 acre-feet.

(b) For Central Valley Project and State Water Project water service contractors south of the Delta and north of the Tehachapi mountain range, if it is assumed that a water supply deficit is the difference between reliable water supplies, including maximum water contract deliveries, safe yield of groundwater, safe yield of local and surface supplies and long-term contracted water transfers, and water demands, including water demands from agriculture, municipal and industrial and refuge contractors, then the water supply deficit ranges between approximately 2,500,000 to 2,700,000 acre-feet.

(c) The California Water Plan evaluated outcomes under current conditions under 198 combinations of climate and growth scenarios, projecting a range of urban and agricultural reliability into the future. Reliability in this instance is defined as the percentage of years in which demand is sufficiently met by supply. Reliability across a range of futures within the San Joaquin Valley can be presented as:

(1) For the San Joaquin River Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 90 and 100 percent, with a mean reliability across futures in the high 90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile.

Commented [A2]: Need to verify the accuracy of these assertions of fact in this and subsequent paragraphs. Administration stands ready to help verify.

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(2) For the Tulare Lake Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 20 and 100 percent, with a mean reliability across futures in the low 70th percentile.

(16) Since the issuance of the biological opinions, considerably uncertainty still exists about the benefits to ~~endangered~~ listed fish populations from water pumping restrictions. For example, hydrodynamic data, acoustic telemetry studies, and other recent studies found that through-Delta survival rates of salmonid species do not correlate directly and clearly with certain water pumping restrictions, in particular limitations to Old and Middle River flows to levels less negative than -5,000 cubic feet per second.

(17) Data of pumping activities at the Central Valley Project and State Water Project delta pumps identifies that, on average from 2008 to 2014, pumping activity takes 893 delta smelt annually with an authorized take level of 5,003 delta smelt annually – according to the biological opinion issued December 15, 2008.

(18) It is worth exploring whether there is a way to implement the biological opinions that would preserve the protections afforded listed ~~endangered~~ fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

(19) In 2014, better information exists than was known in 2008 concerning conditions and operations that may or may not lead to high salvage events that jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

(20) Alternative management strategies, such as trapping and barging juvenile salmon through the Delta, removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time can contribute significantly to protecting and recovering these endangered fish species, and at potentially lower costs to water supplies.

(21) Resolution of fundamental policy questions concerning the extent to which application of the Endangered Species Act affects the operation of the Central Valley Project and State Water Project is the responsibility of Congress.

SEC. 3. DEFINITIONS.

In this Act:

(1) DELTA.—The term “Delta” means the Sacramento-San Joaquin Delta and the Suisun Marsh, as defined in sections 12220 and 29101 of the California Public Resources Code.

(2) Export Pumping Rates.—The term “export pumping rates” means the rates of pumping at the W.C. “Bill” Jones Pumping Plant and the Harvey O. Banks Pumping Plant, in the southern Delta.

(3) JEOPARDY.—The term “jeopardy” means to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction,

Commented [A3]: We agree with the first sentence. We do not agree with the second and recommend its deletion. There are direct correlations between negative OMRs and raw salvage. We acknowledge that disagreements exist around these correlations and their significance – a central topic in the active litigation now pending before the 9th Circuit Court of Appeals.

Commented [A4]: We need to verify this with bill author.

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numbers, or distribution of that species.

(4) OMR.—The term “OMR” means the Old and Middle River in the Delta.

(5) OMR FLOW OF -5000 CFS.—The term “OMR flow of -5000 cfs” means Old and Middle River flow of negative 5,000 cubic feet per second as measured by—

(A) the smelt biological opinion; and

(B) the salmonid biological opinion.

(6) SALMONID BIOLOGICAL OPINION.—The term “salmonid biological opinion” means the biological opinion issued by the National Marine Fisheries Service on June 4, 2009.

(7) SMELT BIOLOGICAL OPINION.—The term “smelt biological opinion” means the biological opinion on the Long-Term Operational Criteria and Plan for coordination of the Central Valley Project and State Water Project issued by the United States Fish and Wildlife Service on December 15, 2008.

(8) STATE.—The term “State” means the State of California.

**TITLE I—ADJUSTING DELTA SMELT MANAGEMENT
BASED ON INCREASED REAL-TIME MONITORING AND
UPDATED SCIENCE**

SEC. 101. DEFINITIONS.

In this title:

(1) DIRECTOR.—The term “Director” means the Director of the United States Fish and Wildlife Service.

(2) DELTA SMELT.—The term “delta smelt” means the fish species with the scientific name *Hypomesus transpacificus*.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Interior.

**SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA
SMELT TO REFLECT NEW SCIENCE.**

No later than October 1, 2015, the Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data available to complete a review and, if warranted, a modification of the incidental take level in the 2008 delta smelt biological opinion that takes into account, among other considerations,—

- (a) salvage information available over at least 18 years;
- (b) updated or more recently developed statistical models;
- (c) updated scientific and commercial data; and

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(d) the most recent information regarding the environmental factors driving delta smelt salvage.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion, as amended, and any successor opinions shall be implemented consistent with current best scientific and commercial data available, and implementation shall be adjusted accordingly as new scientific and commercial data are developed.

(b) Increased Monitoring to Inform Real-time Operations.— Contingent upon funding, the Secretary shall conduct additional surveys, on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests.

(1) In implementing this section, after seeking public input, the Secretary shall —

(A) use the most appropriate survey methods for the detection of delta smelt to determine the extent that adult delta smelt are distributed in relation to certain levels of turbidity, or other environmental factors that may influence salvage rate; and

(B) use results from appropriate survey methods for the detection of delta smelt to determine how the Central Valley Project and State Water Project may be operated more efficiently to minimize salvage while maximizing rates of water export.

(2) During the period beginning on December 1, 2014 and ending March 31, 2015, and in each successive December through March period, if suspended sediment loads enter the Delta from the Sacramento River and the suspended sediment loads appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units (NTU) to values above 12 NTU, the Secretary shall—

(A) conduct daily monitoring using appropriate survey methods at locations including, but not limited to, the vicinity of Station 902 to determine the extent that adult Delta smelt are moving with turbidity toward the export pumps; and

(B) use results from the monitoring surveys at locations including, but not limited to, the vicinity of Station 902 to determine how increased trawling can inform daily real-time Central Valley Project and State Water Project operations to minimize salvage while maximizing rates of water export.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Secretary determines it is appropriate, the Secretary shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the Delta, is providing sufficient data to inform Central Valley Project and State Water Project operations to minimize salvage while

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maximizing rates of water export; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— No later than January 1, 2016, contingent upon funding, the Secretary, in collaboration with Delta science partners, shall implement new targeted sampling and monitoring specifically designed to understand delta smelt abundance, distribution, and the types of habitat occupied by delta smelt during all life stages.

(2) SAMPLING.—The Delta smelt distribution study shall, at a minimum—

(A) include recording water quality and tidal data;

(B) be designed to understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) consider areas not routinely sampled by existing monitoring programs, including wetland channels, near-shore water, depths below 35 feet, and shallow-water; and

(D) use the most biologically appropriate survey methods, including sampling gear suited to the type of sampling or monitoring.

(e) Scientifically supported implementation of Old and Middle River Flow requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers as prescribed by the smelt biological opinion, or any successor biological opinion, to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document in writing any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River pursuant to this section, including monitoring in the vicinity of Station 902, indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cubic feet per second will cause significantly increased take of delta smelt; and

(4) show in writing that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid adverse a significant

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1 ~~population level effects~~ on the Delta smelt ~~that are significant at the population level,~~
2 including an explanation of the data examined and the connection between those data and
3 the choice made, after considering:

4 (A) the findings in paragraph (3);

5 (B) whether continued project operations over the remainder of the water
6 year would exceed the incidental take level;

7 (C) the potential effects of entrainment on subsequent smelt abundance,
8 including consideration of the distribution of the population throughout the
9 Delta,

10 (D) the water temperature,

11 (E) other factors relevant to the determination; and

12 (F) whether any alternative measures could have a lesser water supply
13 impact; and

14 (5) for any subsequent biological opinion, make the showing required in paragraph (4)
15 for any determination to manage OMR reverse flow at rates less negative than the upper
16 limit in the biological opinion.

17 (f) Memorandum of Understanding. No later than December 1, 2014, the Commissioner
18 and the Director will execute of Memorandum of Understanding (MOU) to ensure that
19 the smelt biological opinion is implemented in a manner that minimizes water supply
20 losses while complying with applicable laws and regulations. If that MOU alters any
21 procedures set out in the biological opinion, there will be no need to reinstate
22 consultation if those changes do not have an adverse effect on listed species and the
23 implementation of the MOU would not be a major change to implementation of the
24 biological opinion. Any change to procedures that does not create a new adverse effect
25 to listed species will not alter ~~the application of the take exemption in the incidental take~~
26 ~~statement in parties' take coverage under~~ the biological opinion under ESA Section
27 7(o)(2).

29 TITLE II—ENSURING SALMONID MANAGEMENT IS
30 RESPONSIVE TO NEW SCIENCE

31 SEC. 201. DEFINITIONS.

32 In this title:

33 (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the
34 Assistant Administrator of NOAA Fisheries..

35 (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin

Commented [A5]: We recommend against using the standard of “significant population level effect” as a standard by which to establish specific operational criteria. We suggest “necessary to avoid adversely affecting Delta smelt”, consistent with the MOU language, below.

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steelhead, natural origin genetic spring run Chinook, and genetic winter run [Chinook](#) salmon smolts.

(3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed through the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Assistant Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Assistant Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Assistant Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Assistant Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to the Senate Environment and Public Works Committee and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner’s recommendations regarding broadening the pilot program, ~~and adjusting the provisions of the salmonid biological opinion pursuant to section 203.~~

(b) Tagging studies.

(1) IN GENERAL.—The Assistant Administrator, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are

Commented [A6]: We respectfully decline support for the development of a trap and haul program for listed steelhead as a priority for addressing drought challenges. We believe there are significant and powerful uncertainties around the ability to implement a scientifically credible pilot program for barging listed steelhead at this time. For example, earlier efforts to examine such a program have floundered on the sample sizes that would be required, and the lack of available fish to populate those samples. Bill authors should be aware of these limitations if choosing to proceed with this pilot project.

Commented [A7]: Please understand that it might take a DECADE or more to conduct a pilot program, assuming it is feasible at the outset.

Commented [A8]: We strongly support investing in precision water and fish management. Similar to the focus in Title 1, we recommend placing a higher priority on the design and implementation of tagging and monitoring programs that can assist in the implementation of “real time” operating criteria in lieu of calendar based criteria where feasible. Such a focus hopes a far higher degree of enhancing flexible water management operations than a number of the other current points of emphasis, including trap and haul, mass marking, etc. etc. which are likely to have no immediate or near term benefits.

experimentally altered and the behavior and survival of tagged juvenile salmonids are observed. Studies may also be conducted to aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General directive. The reasonable and prudent alternative described in the salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.

(b) Annual reviews of certain operating criteria. No later than December 31, 2015, and at least annually thereafter,

1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall commence annual efforts to examine and identify adjustments to the timing of pumping operations in initiation of Action IV.2.3 pertaining to negative OMR flows, subject to paragraph (5).
2. The Commissioner, in consultation with and with the assistance of the Assistant Administrator, shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in Action IV.2.1 pertaining to the inflow to exports requirements, subject to paragraph (5).
3. Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator Commissioner make recommendations to the Assistant Administrator Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).

Commented [A9]: We respectfully recommend against legislating permanent law governing how the CVP and the ESA should be implemented. Many of the specifics of the current biological opinions will change over time. Legislating permanent requirements governing specific operating criteria may impede the ability to make these changes and foster considerable confusions as to the prevailing statutory regime. We therefore recommend providing a time limitation to these provisions, enabling them to expire after the end of the drought or by a time certain.

Commented [A10]: Per the comment above, we recommend including in section b) "and until such time as Action IV 2 3 is superseded"

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4. The ~~Assistant Administrator and the~~ Commissioner shall implement those adjustments for which the conditions under subsection (c) are met.
 5. The Assistant Administrator and the Commissioner shall review and identify adjustments to water supply restrictions in any successor biological opinion to the salmonid biological opinion, applying the provisions of this section to those water supply restrictions where there are references to Actions IV.2.1 and IV.2.3.
- (c) Adjustments that shall be implemented. In ~~making-receiving~~ the recommendations under subsection (b), the Assistant Administrator shall evaluate the effects of the recommended adjustments on listed species and shall recommend to the Commissioner adjustments for which:
1. the net effect on listed species is ~~at-worst~~ equivalent to those of the underlying criteria, taking into account whatever actions or measures may be implemented in conjunction with the adjustments to mitigate its effects; ~~and~~
2. the effects of the adjustment fall within the incidental take authorizations.
- (d) Taking into account offsetting species survival benefits from other measures.
1. When examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria as described in (b) and (c), the Commissioner and the Assistant Administrator shall take into account the potential salmonid survival improvements that are likely to result from other measures which, if implemented in conjunction with the adjustments, would offset the adverse effects of the adjustments. ~~When considering offsetting mitigating measures, the Commissioner and the Assistant Administrator shall take into account the type, timing and nature of the adverse effects to specific species and ensure that the mitigation measures serve as offsets to those adverse effects.~~
 - ~~1-2.~~ The offsetting measures could include actions implemented with the support of a substantial contribution from water districts that would benefit from the adjustments.
- (e) Framework for examining opportunities to minimize or offset the potential adverse effect of adjustments to operating criteria.—Not later than December 31, 2015, and every five years thereafter, the Assistant Administrator shall, in collaboration with the Director of the California Department of Fish and Wildlife, based on the best scientific and commercial data available and for each listed salmonid species, issue estimates of the increase in through-Delta survival the Secretary expects to be achieved—
- (1) with export restrictions as specified by Action IV.2.3 as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

Commented [A11]: Please note additional text.

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(2) with San Joaquin River inflow to export restrictions specified within Action IV.2.1 as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(3) by a trap and barge program based on the ~~experience of other comparable systems and the~~ study described in section 202, as that information becomes available;

(4) through physical habitat restoration improvements;

(5) through predation control programs;

(6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;

(7) by salvaging entrained fish at the entrance to Clifton Court Forebay, if feasible; and

(8) by any other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

1) The Assistant Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

2) If the Assistant Administrator provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival to specific species relative to the other measures.

3) If at the time the Assistant Administrator conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the specific species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

(1) For the purposes of this subsection—

Commented [A12]: "Comparable systems" should be identified, if used. There has been research in this, and survival down the San Joaquin is dismal compared to other systems, thus, may not be any comparable systems. Results of the trap and barge program should be compared to the situation without, and include survival and % straying.

Commented [A13]: Please note "if feasible" addition. The screening of the forebay was evaluated and rejected a decade ago on feasibility grounds. We recommend undertaking a pilot program to evaluate the feasibility.

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(A) The alternative management measure or combination of alternative management measures identified in paragraph (2) shall be known as the “equivalent alternative measure.”

(B) The existing measure or measures identified in subparagraphs (2)(A),(B),(C), or (D) shall be known as the “equivalent existing measure.”

(C) An “equivalent increase in through-Delta survival rates for listed salmonid species” shall mean an increase in through-Delta survival rates that is equivalent when considering the change in through-Delta survival rates for the listed salmonid species on a species by species basis, considered as a whole, and not necessarily the same change for each individual species.

(2) As part of the reviews of operating criteria pursuant to subsection (b), the Assistant Administrator shall determine whether any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) would provide an increase in through-Delta survival rates for listed salmonid species that is equivalent to the increase in through-Delta survival rates for listed salmonid species from the following:

(A) with export restrictions as specified by Action IV.2.3, as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable;

(B) with export restrictions as specified by Action IV.2.3, as compared to a modification of Action IV.2.3 that would provide additional water supplies, other than that described in subparagraph (A);

(C) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, or

(D) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to a modification of Action IV.2.1 that would provide additional water supplies, other than that described in subparagraph (C).

(3) If the Assistant Administrator identifies an equivalent alternative measure pursuant to paragraph (2), the Assistant Administrator shall determine whether

(A) it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, and

(B) the adverse consequences of doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

(4) If the Assistant Administrator makes the findings in subparagraph (3)(A) and (B), the Assistant Administrator and the Commissioner shall adjust the operating criteria in the salmonid biological opinion pursuant to this subsection to implement the equivalent alternative measure in place of the equivalent existing measure in order to increase water

Commented [A14]: A fundamental principle of the ESA is that it is designed to protect specific listed species, subspecies or distinct population segments. We oppose the proposition of treating listed salmonids “as a whole”, and not on a species specific basis.
Suggested edit.

Commented [A15]: Please see above comments that “offsets” must be species specific and effects specific. NOAA recommends clarifying this specificity here and throughout to avoid confusion and litigation as to what constitutes “off-setting mitigation”.

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supplies to the greatest extent possible while maintaining a net combined effect of equivalent through-Delta survival rates for the listed salmonid species.

(h) ~~Tracking incidental take levels and Co~~ordinated operation with smelt biological opinion.

~~(1) Among the adjustments to the operational criteria considered through the adaptive management process under this section, the Assistant Administrator and the Commissioner shall~~

~~A) Evaluate the effect on through-Delta survival rates for listed salmonid species and water supply benefits of imposing part or all of the provisions of Actions IV.2.1 and IV.2.3 only in instances where necessary to do so in order to avoid exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year; and~~

~~B) Consider requiring that before some or all of the provisions of Actions IV.2.1, or IV.2.3 are imposed in any specific instance, the Assistant Administrator show that the implementation of these provisions in that specific instance is necessary to avoid adverse effects to exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year.~~

~~(2) Through tracking incidental take levels or some other mechanism, The Assistant Administrator and the Commissioner shall consider establishing operational criteria to coordinate management of OMR flows under the smelt and salmonid biological opinions, in order to take advantage of opportunities to provide additional water supplies from the coordinated implementation of the biological opinions.~~

Commented [A16]: We respectfully oppose the use of the incidental take authorizations as the management objective for establishing or adjusting individual operating criteria, as is proposed here. The incidental take authorizations do not serve this purpose, and are expressed as much "coarser" levels of effects than are the individual operating criteria. We suggest "adverse effects" as a better standard.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE STANISLAUS RIVER.

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River, contingent upon funding. The pilot program shall--

(1) be scientifically based;

(2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;

(3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;

Commented [A17]: The predator removal program should be conducted upstream of Caswell. That specificity should be stated somewhere. Maybe insert a new #2 to say, "on the Stanislaus River, be conducted upstream of the rotary screw trap at Caswell."

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(4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;

(5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research, ~~and~~ species enhancement permits, and funding needed to begin the pilot program; and

(6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct.—

(1) IN GENERAL.— By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES.—In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION.—The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding.—

(1) ANNUAL FUNDING.—The Commissioner, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to ~~the fund directed by~~ the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

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(2) ACCOUNTING.—On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). or NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled. If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation.—

(1) IN GENERAL.—On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT.—On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly submit a report for publication peer reviewed report that—

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process.—

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews.—To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions.—For the purposes of this section:

(1) COMMISSIONER.—The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

Commented [A18]: Publication timelines vary, should not set a deadline for peer reviewed report, but rather, submission of the report for peer review.

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(2) DISTRICTS.—The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM.—The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset.—The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries-

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California's water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

Commented [A19]: We think this is speculation. Predation is an important stressor, but to say that nonnative species will cause pelagic and anadromous communities to go extinct is a pretty bold statement.

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(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section 204, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

(vii) Paintersville Bridge,

Commented [A20]: Please note that there was already a predation workshop, and consider directing the review and implementation of its recommendations rather than duplicate another workshop.

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(viii) individual river tributaries important for wild populations of
anadromous species listed as threatened or endangered under the Endangered
Species Act of 1973,

(ix) Human-made submerged structures, and

(x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement
nonnative reduction methods at a larger number of sites, incorporating information
learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of
the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the
Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in
collaboration with the Secretary of Commerce and the Director of the California Department
of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable
and prudent alternatives contained in the salmonid biological opinion and the biological
opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or
other administrative federal requirements governing the operation of the Central Valley
Project and the State Water Project, that are likely to produce additional fishery, water
quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program
described in subpart (b) for at least a period of seven consecutive years beginning on the date of
implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the
Senate Committee on Environment and Public Works and the House Committee on Natural
Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b),
including the application for all necessary scientific research and species enhancement
permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C.
1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report
describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication
of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and
how such efforts have helped the Recovery Plans for endangered and threatened
Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and
the associated cost effectiveness of each control measure.

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(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall—

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The Assistant Administrator shall ensure that the independent science panel—

(A) Includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries;

(B) Considers and gives equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Completes the review by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

(A) In carrying out the assessment under this Paragraph, any alternative harvest strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for

Commented [A21]: Please note that NOAA Fisheries and others convened the California Hatchery Scientific Review Group, which released a comprehensive set of recommendations on hatchery reforms, including expanded marking and tagging of hatchery releases. Respectfully recommend deletion of this section as redundant and not an important priority for addressing the 2015 drought. We remain totally open to exploring more aggressive implementation of the Cal. HSRG's recommendations with legislators and other interested parties.

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Chinook harvest management in Oregon and Washington.

**SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL
VALLEY SALMONIDS.**

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

**TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT
RELIEF**

SEC. 301. FINDINGS.

Congress finds that—

(1) Based on the congressional findings in Sec. 2 of this Act, it is appropriate and necessary for federal agencies to exercise the maximum amount of flexibility provided to them under the applicable laws and regulations to maximize delivery of water supplies while providing the same or better levels of protection for species.

SEC. 302. DEFINITIONS.

In this title:

(1) **CENTRAL VALLEY PROJECT.**—The term “Central Valley Project” has the meaning given the term in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4707).

(2) **KLAMATH PROJECT.**—The term “Klamath Project” means the Bureau of Reclamation project in the States of California and Oregon, as authorized under the Act of June 17, 1902 (32 Stat. 388, chapter 1093).

(3) **RECLAMATION PROJECT.**—The term “Reclamation Project” means a project constructed pursuant to the authorities of the reclamation laws and whose facilities are wholly or partially located in the State.

(4) **SECRETARIES.**—The term “Secretaries” means—

(A) the Administrator of the Environmental Protection Agency;

Commented [A22]: DOI still not clear on the intent of this section. Recommend offline discussion with bill author.

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- (B) the Secretary of Agriculture;
- (C) the Secretary of Commerce; and
- (D) the Secretary of the Interior.

(5) STATE WATER PROJECT.—The term “State Water Project” means the water project described by California Water Code section 11550 et seq., and operated by the California Department of Water Resources.

SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT.

(a) Water Supplies.—

(1) IN GENERAL.—In response to a declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, the Secretaries shall provide the maximum quantity of water supplies practicable to Central Valley Project agricultural, municipal and industrial, and refuge service and repayment contractors, State Water Project contractors, and any other tribe, locality or municipality in the State, by approving, consistent with applicable laws (including regulations), projects and operations to provide additional water supplies as quickly as practicable based on available information to address the emergency conditions.

(2) APPLICATION.—Paragraph (1) applies to projects or operations involving the Klamath Project if the projects or operations would benefit Federal water contractors in the State.

(b) Administration.—In carrying out subsection (a), the Secretaries shall, consistent with applicable laws (including regulations)—

(1) issue all necessary permit decisions under the authority of the Secretaries not later than 30 days after the date on which the Secretaries receive a completed application from the State to place and use temporary barriers or operable gates in Delta channels to improve water quantity and quality for the State Water Project and the Central Valley Project south of Delta water contractors and other water users, on the condition that the barriers or operable gates—

(A) provide benefits for species protection and in-Delta water user water quality; and

(B) are designed so that formal consultations under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536) are not necessary;

(2) require the Director of the United States Fish and Wildlife Service and the Commissioner of Reclamation—

(A) to complete, not later than 30 days after the date on which the Director or the Commissioner receives a complete written request for water transfer associated with voluntarily fallowing nonpermanent crops in the State, all requirements under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) necessary to make final permit decisions on the request; and

Commented [A23]: We recommend recasting Sec. 303 in the context of the development of a 2015 Drought Operations Plan as per earlier Administration recommendations. See text we have previously submitted at the end of this document “ALTERNATIVE SEC. 303”

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(B) to grant any water transfer request described in subparagraph (A) to maximize the quantity of water supplies available for nonhabitat uses, on the condition that the following and associated water transfer are in compliance with applicable Federal laws (including regulations);

(3) adopt a 1:1 inflow to export ratio for the increment of increased flow of the San Joaquin River, as measured as a 3-day running average at Vernalis during the period beginning on April 1, and ending on May 31, resulting from voluntary transfers and exchanges of water supplies, on the condition that a proposed transfer or exchange under this paragraph may only proceed if the Secretary of the Interior determines that the environmental effects of the proposed transfer or exchange are consistent with effects permissible under applicable law (including regulations), and Delta conditions are suitable to allow movement of the transfer water through the Delta consistent with Reclamation's permitted rights; and

(4) Provide additional priority for eligible WaterSMART projects that address drought conditions including projects that—

(A) provide emergency drinking and municipal water supplies to localities in a quantity necessary to meet minimum public health and safety needs;

(B) prevent the loss of permanent crops;

(C) minimize economic losses resulting from drought conditions; or

(D) provide innovative water conservation tools and technology for agriculture and urban water use that can have immediate water supply benefits.

(c) Accelerated Project Decision and Elevation.—

(1) IN GENERAL.— On request by the Governor of the State, the heads of Federal agencies shall use the expedited procedures under this subsection to make final decisions relating to a Federal project or operation if the project's or operation's purpose is to provide relief for emergency drought conditions pursuant to subsections (a) and (b).

(2) REQUEST FOR RESOLUTION.—

(A) IN GENERAL.—On request by the Governor of the State, the head of a Federal agency referenced in paragraph (1), or the head of another Federal agency responsible for carrying out a review of a project, as applicable, the Secretary of the Interior shall convene a final project decision meeting with the heads of all relevant Federal agencies to decide whether to approve a project to provide relief for emergency drought conditions.

(B) MEETING.—The Secretary of the Interior shall convene a meeting requested under subparagraph (A) not later than 7 days after the date on which the meeting request is received.

(3) NOTIFICATION.—On receipt of a request for a meeting under paragraph (2), the Secretary of the Interior shall notify the heads of all relevant Federal agencies of the request, including information on the project to be reviewed and the date of the meeting.

(4) DECISION.—Not later than 10 days after the date on which a meeting is requested

Commented [A24]: Please note that as a technical matter the 1:1 ratio under Action IV.2.1 pertains to a critically dry year, while other ratios are applicable to differing water year types. We note the directive to examine the broader application of the 1:1 ratio and implement it if consistent with permissible effects.

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under paragraph (2), the head of the relevant Federal agency shall issue a final decision on the project.

(5) MEETING CONVENED BY SECRETARY.—The Secretary of the Interior may convene a final project decision meeting under this subsection at any time, at the discretion of the Secretary, regardless of whether a meeting is requested under paragraph (2).

(d) Application.—To the extent that a Federal agency, other than the agencies headed by the Secretaries, has a role in approving projects described in subsections (a) and (b), this section shall apply to those Federal agencies.

(e) Limitation.—Nothing in this section authorizes the heads of applicable Federal agencies to approve projects—

(1) that would otherwise require congressional authorization; or

(2) without following procedures required by applicable law.

SEC. 304. OPERATION OF CROSS-CHANNEL GATES.

(a) In General.—The Secretary of Commerce and the Secretary of the Interior shall jointly—

(1) authorize and implement activities to ensure that the Delta Cross Channel Gates remain open to the maximum extent practicable using findings from the United States Geological Survey on diurnal behavior of juvenal salmonids, timed to maximize the peak flood tide period and provide water supply and water quality benefits for the duration of the drought emergency declaration of the State, consistent with operational criteria and monitoring criteria developed pursuant to the Order Approving a Temporary Urgency Change in License and Permit Terms in Response to Drought Conditions of the California State Water Resources Control Board, effective January 31, 2014 (or a successor order) and other authorizations associated with it;

(2) with respect to the operation of the Delta Cross Channel Gates described in paragraph (1), collect data on the impact of that operation on—

(A) species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

(B) water quality; and

(C) water supply;

(3) consistent with knowledge gained from activities carried out during 2014, collaborate with the California Department of Water Resources to install a deflection barrier at Georgiana Slough in coordination with Delta Cross Channel Gate diurnal operations to protect migrating salmonids;

(4) evaluate the combined salmonid survival in light of activities carried out pursuant to paragraphs (1) through (3) in deciding how to operate the Delta Cross Channel gates to enhance salmonid survival and water supply benefits; and

(5) not later than May 15, 2015, submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Natural Resources of the House of

Commented [A25]: Please note that this may not be consistent with subsection (e)(2), below, which includes the ESA.

Commented [A26]: We are unclear if the operation described is physically feasible for DCC operation

Commented [A27]: NOAA provided specific operational criteria applicable to the DCC; hence the additional references as proposed.

Commented [A28]: We recommend verifying if this action is feasible. We are happy to work with bill authors offline to answer this question.

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Representatives a written report on the extent to which the gates are able to remain open.

(b) Recommendations.—After assessing the information collected under subsection (a), the Secretary [of the Interior] shall recommend revisions to the operation of the Delta Cross-Channel Gates, to the Central Valley Project, and to the State Water Project, including, if appropriate, any reasonable and prudent alternatives contained in the biological opinion issued by the National Marine Fisheries Service on June 4, 2009, that are likely to produce fishery, water quality, and water supply benefits.

Commented [A29]: Please clarify that this might also require changes to D-1641 to implement

SEC. 305. FLEXIBILITY FOR EXPORT/INFLOW RATIO.

In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, ~~consistent with the Central Valley Project and State Water Project Drought Operations Plan and Operational Forecast~~, the Commissioner of the Bureau of Reclamation shall continue to vary the averaging period of the Delta Export/Inflow ratio pursuant to the California State Water Resources Control Board decision D1641, approved in the March Temporary Urgency Change Order—

Commented [A30]: Rather than Gov, may want to consider tying the section to the designation of the end of the critical drought through reference to the relevant federal drought monitoring authority -- and not to a proclamation by the Governor - in order to tie it to a factual circumstance and not to a policy decision by a state official.

(1) to operate to a 35 percent Export/Inflow ratio with a 3 day averaging period on the rising limb of a Delta inflow hydrograph; and

(2) to operate to a 14 day averaging period on the falling limb of the Delta inflow hydrograph.

SEC. 306. EMERGENCY ENVIRONMENTAL REVIEWS.

To minimize the time spent carrying out environmental reviews and to deliver water quickly that is needed to address emergency drought conditions in the State during the duration of an emergency drought declaration, the head of each applicable Federal agency shall, in carrying out this Act, consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations), to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) during the emergency.

SEC. 307. PRIORITIZING STATE REVOLVING FUNDS DURING DROUGHTS.

(a) In General.—This section shall apply for each of the fiscal years during which an emergency drought declaration of the State is in effect.

(b) The Administrator of the Environmental Protection Agency, in implementing the processes and programs under the State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), shall, for those projects that are eligible to receive assistance under section 603 of the Federal Water Pollution Control Act (33 U.S.C. 1383) or section 1452(a)(2) of the Safe Drinking Water Act (42 U.S.C. 300j-12(a)(2)),

(1) issue a determination of waivers within 30 days of the conclusion of the informal public comment period pursuant to section 436(c) of title IV of division G of Public Law

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113–76; and

(2) authorize, at the request of the State, 40-year financing for assistance under section 603(d)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)(2)) or section 1452(f)(2) of the Safe Drinking Water Act (42 U.S.C. 300j–12(f)(2)).

(c) Effect of Section.—Nothing in this section authorizes the Administrator of the Environmental Protection Agency to modify any funding allocation, funding criteria, or other requirement relating to State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) for any other State.

SEC. 308. INCREASED FLEXIBILITY FOR REGULAR PROJECT OPERATIONS.

The Secretaries shall, consistent with applicable laws (including regulations)—

(1) to the maximum extent practicable, based on the availability of water and without causing land subsidence or violating water quality standards—

(A) help meet the contract water supply needs of Central Valley Project refuges through the improvement or installation of water conservation measures, water conveyance facilities, and wells to use groundwater resources, on the condition that those activities may only be accomplished by using funding made available under the Water Assistance Program or the WaterSMART program of the Department of the Interior; and

(B) make available to Central Valley Project contractors a quantity of Central Valley Project surface water obtained from the activities carried out under subparagraph (A);

(2) contingent upon funding, in coordination with the Secretary of Agriculture, enter into an agreement with the National Academy of Sciences to conduct a comprehensive study, to be completed not later than 1 year after the date of enactment of this Act, on the effectiveness and environmental impacts of saltcedar biological control efforts on increasing water supplies and improving riparian habitats of the Colorado River and its principal tributaries, in the State and elsewhere;

(3) in coordination with the California Department of Water Resources and the California Department of Fish and Wildlife, implement offsite upstream projects in the Delta and upstream Sacramento River and San Joaquin basins that offset the effects on species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) due to activities carried out pursuant this Act, [as determined by the Secretaries];

(4) manage reverse flow in the Old and Middle Rivers as prescribed by the biological opinions issued by the United States Fish and Wildlife Service on December 15, 2008, for Delta smelt and by the National Marine Fisheries Service on June 4, 2009, for salmonids, or any successor biological opinions, to minimize water supply reductions for the Central Valley Project and the State Project, and issue guidance no later than December 31, 2015 directing their employees to take all steps necessary to manage flow in accordance with this

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paragraph;

(5) as soon as practicable after the date of enactment of this Act and pursuant to existing authority available to the Secretary of the Interior, participate in, issue grants, or otherwise provide funding for pilot projects to increase water in reservoirs in regional river basins experiencing extreme, exceptional, or sustained drought that have a direct impact on the water supply of the State, including the Colorado River Basin, on the condition that any participation, grant, or funding by the Secretary of the Interior with respect to the Upper Division shall be with or to the respective State; and

(6) use all available scientific tools to identify any changes to real-time operations of the Bureau of Reclamation, State, and local water projects that could result in the availability of additional water supplies.

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- (1) During the ~~2013~~ 2014 water year, operations of the Central Valley Project and the State Water Project, the incidental take of adult Delta smelt was zero; of juvenile Delta smelt, 78 (7.7% of the incidental take limit); of winter run chinook, 339 (1.4% of the incidental take limit); of spring run chinook, zero; and of steelhead, 261 (8.7% of the incidental take limit).
- (2) The Central Valley Project and State Water Project exceeded a ~~Old and Middle River flow combined pumping capacity~~ of -5,000 cubic feet per second over a 14-day average for brief periods after three storm events in February and March 2014, ~~as a result of increased pumping~~, but did not cause substantially increased take of smelt or salmon.
- (3) Hydrological conditions in dry years, such as the ~~2013~~ 2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- (4) The Secretaries should be allowed more flexibility to increase pumping levels without causing significant risk to the listed species or weakening other environmental protections.
- (5) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the ~~2014~~ 2015 water year, and provide for the diversion of those supplies to the Central Valley Project and State Water Project so that farms, businesses, and homes in drought-stricken areas will have an opportunity to bolster their meager supplies when water is available.

(b) In general. Consistent with avoiding ~~additional significant adverse effects upon take of listed fish beyond those currently authorized under the ESA, likely to result in exceeding the incidental take level in the biological opinions~~ and other environmental protections under subsection (e), the Secretaries shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at ~~up to~~ -7500 cubic feet per second ~~(based on USGS gages on Old and Middle rivers) daily average for up to 21 - 21 - 21 cumulative days after October 1, 2014, as described in subsection (c).~~

Commented [A31]: We have not at the time of these comments been able to verify whether these findings are accurate and note the use of surrogates to estimate salvage and loss of listed spring-run at the pumps. We reserve the opportunity to provide additional data and modifications to the language to accurately describe the effects of 2014 operations as those data are analyzed and refined.

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Commented [A32]: Please note the change in language to "adverse effects beyond those currently authorized under the ESA" and "up to" 21 cumulative days. These changes are important to maintain Agency operational flexibility and avoid potential litigation.

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(c) Days of temporary operational flexibility. The temporary operational flexibility described in subsection (b) shall be authorized on days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

(d) Compliance with ESA incidental take authorizations. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of temporary operational flexibility as they if they determine may be necessary to avoid undue additional adverse effects over and above those authorized under the ESA that otherwise project operations over the remainder of the water year would exceed the incidental take authorizations in the biological opinions.

(e) Other environmental protections.

- (1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year;
- (2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;
- (3) This section shall not have any effect on the applicable requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of such applicable requirements may be adjusted ~~relaxed~~ during this time period to provide emergency water supply relief without resulting in additional adverse effects beyond those authorized under the ESA, exceeding the incidental take level;
- (4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential negative impacts and actions necessary to mitigate any impacts of the temporary operational flexibility to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and
- (5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements of ~~off~~ this section.

(f) Technical adjustments to target period. If, before temporary operational flexibility has been implemented on 21 cumulative days, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative than -7500 cubic feet per second during days of temporary operational flexibility as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) Emergency consultation; effect on running averages.

Commented [A33]: Please note that first flush flows over 14,000 cfs at Wilkins Slough have been observed to trigger emigration of winter-run, so that the timing of increased exports with more negative OMR may coincide with higher emigration of and effects to winter-run. The agencies are actively evaluating the ability to implement adjustments to negative OMR criteria to enhance early spring water deliveries thru the deployment of real time monitoring capabilities, and will implement such adjustments thru the 2015 Drought Operations Plan.

Commented [A34]: Please note the recommended modifications to the operative standard: the incidental take authorizations do not function as biological objectives for specific operating criteria and were not designed to do so.

Commented [A35]: The incidental take limits are not meant to operate to.

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1) If necessary to implement the provisions of this section, the Commissioner shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of temporary operational flexibility—

A) no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e); and

B) including, as appropriate, adjustments to ensure that the actual flow rates during the periods of temporary operational flexibility do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.

2) Following the conclusion of the 21 days of temporary operational flexibility, the Commissioner shall not ~~need to~~ reinitiate consultation on these adjusted operations on the biological opinions if the effects on listed species of these operations under this section remain within the range of those those currently authorized under the ESA. ~~incidental take authorizations.~~

Commented [A36]: Please note recommended changes.

(h) Level of detail required for analysis. In articulating the determinations required under this section, the Secretaries shall fully satisfy the requirements herein but shall not be expected to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely decision-making in response to changing conditions in the Delta.

(i) Duration. This section shall expire on September 30, 2015.

SEC. 310. EXPEDITING WATER TRANSFERS.

(a) In General.—Section 3405(a) of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4709(a)) is amended—

(1) by redesignating paragraphs (1) through (3) as paragraphs (4) through (6), respectively;

(2) in the matter preceding paragraph (4) (as so designated)—

(A) in the first sentence, by striking “In order to” and inserting the following:

“(1) IN GENERAL.—In order to”; and

(B) in the second sentence, by striking “Except as provided herein” and inserting the following:

“(3) TERMS.—Except as otherwise provided in this section”; and

(3) by inserting before paragraph (3) (as so designated) the following:

“(2) EXPEDITED TRANSFER OF WATER.—The Secretary shall take all necessary actions to facilitate and expedite transfers of Central Valley Project water in accordance with—

“(A) this Act;

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- 1 “(B) any other applicable provision of the reclamation laws; and
2 “(C) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.)”;
3 (4) in paragraph (4) (as so designated)—
4 (A) in subparagraph (A), by striking “to combination” and inserting “or
5 combination”; and
6 (B) by striking “3405(a)(2) of this title” each place it appears and inserting “(5)”;
7 (5) in paragraph (5) (as so designated), by adding at the end the following:
8 “(E) The contracting district from which the water is coming, the agency, or the
9 Secretary shall determine if a written transfer proposal is complete within 45 days after
10 the date of submission of the proposal. If the contracting district or agency or the
11 Secretary determines that the proposal is incomplete, the district or agency or the
12 Secretary shall state with specificity what must be added to or revised for the proposal
13 to be complete.”; and
14 (6) in paragraph (6) (as so designated), by striking “3405(a)(1)(A)-(C), (E), (G), (H), (I),
15 (L), and (M) of this title” and inserting “(A) through (C), (E), (G), (H), (I), (L), and (M) of
16 paragraph (4)”.
17 (b) Conforming Amendments.—The Central Valley Project Improvement Act (Public Law
18 102–575) is amended—
19 (1) in section 3407(c)(1) (106 Stat. 4726), by striking “3405(a)(1)(C)” and inserting
20 “3405(a)(4)(C)”; and
21 (2) in section 3408(i)(1) (106 Stat. 4729), by striking “3405(a)(1) (A) and (J) of this title”
22 and inserting “subparagraphs (A) and (J) of section 3405(a)(4)”

23 **SEC. 311. WARREN ACT CONTRACTS.**

24 [To be supplied.]

25 **SEC. 312. ADDITIONAL WARREN ACT CONTRACTS.**

26 [To be supplied.]

Commented [A37]: Language was not provided and the Administration takes no position on these sections.

27
28 **TITLE IV—INCREASING WATER STORAGE**

29 **SEC. 401. FINDINGS.**

30 Congress finds that—

- 31 (1) the record drought conditions being experienced in the State as of the date of
32 enactment of this Act are—
33 (A) expected to recur in the future; and
34 (B) likely to do so with increasing frequency;

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(2) water storage is an indispensable and integral part of any solution to address the long-term water challenges of the State;

(3) Congress authorized relevant feasibility studies for 4 water storage projects in the State, including projects for—

(A) enlargement of Shasta Dam in Shasta County under section 2(a) of Public Law 96–375 (94 Stat. 1506), as reaffirmed under section 103(d)(1)(A)(i)(I) of Public Law 108–361 (118 Stat. 1684);

(B) enlargement of Los Vaqueros Reservoir in Contra Costa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(i)(II) of Public Law 108–361 (118 Stat. 1684);

(C) construction of North-of-Delta Offstream Storage (Sites Reservoir) in Colusa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(I) of Public Law 108–361 (118 Stat. 1684); and

(D) construction of the Upper San Joaquin River storage (Temperance Flat) in Fresno and Madera Counties under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(II) of Public Law 108–361 (118 Stat. 1684);

(4)(A) as of the date of enactment of this Act, it has been more than 10 years since the authorization of the feasibility studies referred to in paragraph (3); but

(B) complete and final feasibility studies have not been prepared for any of those water storage projects;

(5) as of August 2014, only 2 of the 4 projects referred to in paragraph (3) have completed draft feasibility studies;

(6) the slow pace of work on completion of the feasibility studies for those 4 water storage projects is—

(A) unjustified; and

(B) of deep concern; and

(7) there is significant public interest in, and urgency with respect to, completing all feasibility studies and environmental reviews for the water storage projects referred to in paragraph (3), given the critical need for that infrastructure to address the water challenges of the State.

SEC. 402. CALFED STORAGE FEASIBILITY STUDIES.

(a) In General.—Notwithstanding subparagraph (B)(i) of section 103(d)(1) of Public Law 108–361 (118 Stat. 1684), the Secretary of the Interior, acting through the Commissioner of Reclamation (referred to in this title as the “Secretary”), shall complete a final feasibility study and any other applicable environmental review documents for the project described in—

(1) subparagraph (A)(i)(I) of that section by not later than December 31, 2014;

(2) subparagraph (A)(ii)(II) of that section by not later than July 31, 2015.

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(b) Environmental Reviews.—In carrying out subsection (a), the Secretary—

(1) shall ensure that—

(A) all applicable reviews, including reviews required under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), are completed as expeditiously as practicable; and

(B) the shortest applicable process under that Act is used, including in the completion of—

(i) feasibility studies;

(ii) draft environmental impact statements; and

(iii) final environmental impact statements; and

(2) shall not be required to complete a draft or final environmental impact statement if the Commissioner of Reclamation determines, and the Secretary concurs, that the project fails to meet applicable Federal cost-benefit requirements or standards.

(c) Accountability.—

(1) If the Bureau of Reclamation determines that an environmental review document for the water storage projects referenced in of Section 103(d)(1) of P.L. 108-361 will not be completed according to the schedule specified in subsection (a), the Bureau shall notify the Senate Committee on Energy and Natural Resources, the Senate Appropriations Subcommittee on Energy and Water Development, and the House of Representatives Transportation and Infrastructure Committee within 14 days of the determination. The notification shall include:

(A) An explanation of the delay;

(B) The anticipated length of the delay and the revised completion date;

(C) The steps that the Bureau will take to mitigate the delay, including, but not limited to, a request to reprogram existing funds appropriated to the Bureau to meet the revised completion deadline.

(b) The Bureau of Reclamation shall carry out the procedures in subsection (a) for each subsequent delay beyond the revised completion deadline.

SEC. 403. WATER STORAGE PROJECT CONSTRUCTION.

(a) The Secretary, acting through the Commissioner of the Bureau of Reclamation, may partner or enter into an agreement on the water storage projects identified in section 103(d)(1) of the Water Supply Reliability and Environmental Improvement Act (Public Law 108-361) (and Acts supplemental and amendatory to the Act) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments within the applicable hydrologic region, to advance those projects.

(b) [PLACEHOLDER FOR AUTHORIZATION ISSUE]

SEC. 404. OTHER STORAGE FEASIBILITY STUDIES.

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(a) Definition of Qualifying Project.—In this section, the term “qualifying project” means new surface water storage projects constructed on lands administered by the Department of the Interior in a State in which the Bureau of Reclamation has jurisdiction, exclusive of any easement, right-of-way, lease, or any private holding.

(b) Lead Agency.—

(1) QUALIFYING PROJECTS WITHIN JURISDICTION OF BUREAU OF RECLAMATION.—The Bureau of Reclamation shall serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct qualifying projects within the jurisdiction of the Bureau.

(2) QUALIFYING PROJECTS OUTSIDE JURISDICTION OF BUREAU OF RECLAMATION.—If the site of a qualifying project is not located in a State in which the Bureau of Reclamation has jurisdiction, the Secretary shall, by not later than 45 days after the date of receipt of an application for the qualifying project—

(A) designate an alternate agency within the Department of the Interior to serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct the qualifying project; or

(B) in consultation with the heads of other Federal departments and agencies, identify the appropriate lead agency for the qualifying project.

(c) Cooperating Agencies.—

(1) FEDERAL DEPARTMENTS AND AGENCIES.—The lead agency designated under paragraph (1) or (2) of subsection (b) shall—

(A) as soon as practicable after receipt of an application for a qualifying project, identify any Federal department or agency that may have jurisdiction over a review, permit, license, approval, or decision required for the qualifying project under applicable Federal laws (including regulations); and

(B) as soon as practicable after the date of identification under subparagraph (A)—

(i) notify each applicable department or agency of the identification; and

(ii) designate the department or agency as a cooperating agency, unless the department or agency—

(I) has no jurisdiction or authority with respect to the qualifying project;

(II) has no expertise or information relevant to the qualifying project or any review, permit, license, approval, or decision associated with the qualifying project; or

(III) does not intend—

(aa) to submit comments regarding the qualifying project; or

(bb) to conduct any review of the qualifying project or make any

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decision with respect to the qualifying project in a manner other than in cooperation with the Bureau of Reclamation.

(2) STATES.—A State in which a qualifying project is proposed to be carried out may elect, consistent with Federal and State law, to participate as a cooperating agency, if the lead agency designated for the proposed qualifying project under paragraph (1) or (2) of subsection (b) determines that the applicable agency of the State—

(A) has jurisdiction over the qualifying project under applicable Federal or State law;

(B) is required to conduct or issue a review of the qualifying project; and

(C) is required to make a determination regarding issuing a permit, license, or approval of the qualifying project.

(d) Duties of Lead Agency.—

(1) IN GENERAL.—Not later than 30 days after the date of receipt of an application for approval of a qualifying project, the lead agency shall hold a meeting among the applicant, the lead agency, and all cooperating agencies to establish, with respect to the qualifying project, all applicable—

(A) requirements;

(B) review processes; and

(C) stakeholder responsibilities.

(2) SCHEDULE.—

(A) ESTABLISHMENT.—Not later than 30 days after the date of the meeting under paragraph (1), the lead agency, in consultation with the attendees of the meeting, shall establish a schedule for completion of the qualifying project, taking into consideration, among other relevant factors—

(i) the responsibilities of cooperating agencies under applicable laws and regulations;

(ii) the resources available to the cooperating agencies and non-Federal project stakeholders;

(iii) the overall size and complexity of the qualifying project;

(iv) the overall schedule for, and cost of, the qualifying project; and

(v) the sensitivity of the natural and historic resources that may be affected by the qualifying project.

(B) REQUIREMENTS.—On establishment of a schedule for a qualifying project under subparagraph (A), the lead and cooperating agencies shall—

(i) to the maximum extent practicable, adhere to the schedule; and

(ii) submit to the Committee on Environment and Public Works of the Senate and the Committee on Natural Resources of the House of Representatives on a

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semiannual basis a report describing any delays in the schedule, including a description of—

(I) the reasons for the delay;

(II) the actions that the lead and cooperating agencies will take to minimize the delay; and

(III) a revised schedule for the qualifying project, if applicable.

(e) Environmental Reviews.—

(1) SINGLE, UNIFIED ENVIRONMENTAL REVIEW DOCUMENT.—

(A) IN GENERAL.—The lead agency with respect to a qualifying project, in consultation with appropriate stakeholders and cooperating agencies, shall determine whether a single, unified environmental review document relating to the qualifying project is sufficient to comply with applicable Federal laws (including regulations), including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) ACTION ON DECLINATION.—If, after consultation under subparagraph (A), a lead agency determines not to adopt a single, unified environmental review document relating to a qualifying project—

(i) the lead agency shall—

(I) document the reasons for the determination; and

(II) submit to the Secretary a report describing those reasons; and

(ii) the Secretary may require the adoption of a single, unified document at the discretion of the Secretary, based on good cause.

(2) ENVIRONMENTAL ASSESSMENT.—Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental assessment is sufficient to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental assessment shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental assessment by not later than 180 days after the end of the period for public comments on the draft environmental assessment.

(3) ENVIRONMENTAL IMPACT STATEMENT.— Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental impact statement is required to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental impact statement shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

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(B) the lead agency shall issue the final environmental impact statement by not later than 1 year after the end of the period for public comments on the draft environmental impact statement.

(4) MODIFICATION OF SCHEDULE.—In carrying out paragraphs (2) and (3),

(A) the lead agency with respect to a qualifying project may modify the schedule of the qualifying project if:

(i) the Federal lead agency can demonstrate good cause, such as the need for additional time to comply with other statutory or regulatory requirements other than the National Environmental Policy Act of 1969, and the head of that agency submits to Congress a written determination describing the cause and reasons for the modification no less than 30 days before the original scheduled deadline; or

(ii) the Federal lead agency, the project sponsor, the joint lead agency (as applicable), and all participating and cooperating agencies agree to such modification.

(B) no modification pursuant to subparagraph (4)(A) shall postpone the issuance of a final environmental assessment by more than 1 year, or a final environmental impact statement by more than 2 years, unless the conditions under (4)(A)(i) or (4)(A)(ii) are met.

(C) If a modification occurs pursuant to this paragraph, the Federal lead agency shall issue and adhere to the revised schedule unless the conditions under (4)(A)(i) or (4)(A)(ii) are met.

(5) REQUIREMENTS.—On commencement of the environmental review process under this subsection, the lead and cooperating agencies shall, as soon as practicable—

(A) make available to all stakeholders of the qualifying project information regarding—

(i) the environmental and socioeconomic resources located within the area of the qualifying project; and

(ii) the general locations of the alternatives under consideration; and

(B) identify any issues of concern regarding the potential environmental or socioeconomic effects of the qualifying project, including any issues that could substantially delay or prevent an agency from granting a permit or other approval that is needed for a study relating to the qualifying project.

(f) Concurrent Review Actions.—

(1) IN GENERAL.—Any review, analysis, permit, license, approval, or decision regarding a qualifying project made by a Federal, State, or local government agency shall be—

(A) conducted, to the maximum extent practicable, concurrently with any other applicable government agency; and

(B) incorporated in the schedule for the qualifying project under subsection (d)(2).

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(2) REQUIREMENT.—The lead and cooperating agencies for a qualifying project shall formulate and implement administrative, policy, and procedural mechanisms to enable adherence to the schedule for the qualifying project in a timely, coordinated, and environmentally responsible manner.

(3) GUIDANCE.—The Secretary shall issue guidance regarding the use of programmatic approaches to carry out the environmental review process that, to the maximum extent practicable—

(A) eliminates repetitive discussions of the same issues;

(B) focuses on the actual issues ripe for analysis at each level of review;

(C) establishes a formal process for coordinating with participating and cooperating agencies, including the establishment of a list of all data required to carry out an environmental review process; and

(D) complies with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and all other applicable laws and regulations.

(g) Administrative Record and Data Management.—

(1) IN GENERAL.—The lead agency shall—

(A) be responsible for compiling the administrative record of the information used as the basis for decisions relating to a qualifying project; and

(B) to the maximum extent practicable and consistent with Federal law, make available all data regarding the qualifying project in a format that is accessible via electronic means for project stakeholders, cooperating agencies, and the public.

(2) REPORTS.—Not less frequently than once each year, the lead agency shall submit a progress report regarding a qualifying project to project stakeholders, cooperating agencies, the Committee on Environment and Public Works of the Senate, and the Committee on Natural Resources of the House of Representatives.

(h) Participation by Non-Federal Project Sponsors.—

(1) APPLICATION TO SERVE AS COOPERATING AGENCY.—A non-Federal sponsor of a qualifying project may submit to the lead Secretary an application to serve as a cooperating agency of the qualifying project for purposes of preparing any necessary documents relating to the qualifying project, including an environmental review, if—

(A) the non-Federal sponsor is a public agency as defined under the laws of the state in which the agency is located;

(B) the non-Federal sponsor agrees to adhere to—

(i) all required Federal laws (including regulations) in carrying out the qualifying project; and

(ii) all decisions regarding the qualifying project that have been agreed on by other stakeholders of the qualifying project; and

(C) the applicable lead agency certifies that participation by the non-Federal sponsor

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will not inappropriately bias the qualifying project in favor of the non-Federal sponsor.

(2) FUNDS.—Any funds contributed by a non-Federal sponsor to a qualifying project—

(A) may be accepted to maintain or accelerate progress on the qualifying project, subject to the condition that the Secretary shall—

(i) review the use of the funds; and

(ii) certify in writing that the funds—

(I) are used solely to complete applicable environmental reviews; and

(II) do not unduly influence any permit or approval decision regarding the qualifying project; and

(B) shall be applied toward the non-Federal cost-share of the qualifying project.

(i) Applicability to Calfed Storage Studies.—For any feasibility study referred to in section 401(3), this section shall apply to all activities to be carried out under the study on or after the date of enactment of this Act that would lead to congressional authorization of an applicable project for construction.

SEC. 405. DAM SAFETY PROJECTS WITH INCREASED STORAGE COMPONENT.

(a) Additional Project Benefits.—The Reclamation Safety of Dams Act of 1978 is amended—

(1) in section 3 (43 U.S.C. 507), by striking “Construction” and inserting “Except as provided in section 5B, construction”; and

(2) by inserting after section 5A (43 U.S.C. 509a) the following:

“SEC. 5B. ADDITIONAL PROJECT BENEFITS.

“(a) In General.—Notwithstanding section 3, if the Secretary, in the judgment of the Secretary, makes a determination described in subsection (b), the Secretary is authorized to develop any additional project benefit—

“(1) through the construction of new or supplementary works on a project in conjunction with the activities carried out by the Secretary pursuant to section 2; and

“(2) subject to the conditions described in the feasibility study relating to the project.

“(b) Description of Determination.—A determination referred to in subsection (a) is a determination by the Secretary that—

“(1) an additional project benefit, including but not limited to additional conservation storage capacity, is—

“(A) necessary; and

“(B) in the interests of the United States; and

“(2) the project [benefit] proposed to be carried out is—

Commented [A38]: The Administration has concerns with amending the Safety of Dams Act. See suggested technical assistance below.

“(A) feasible; and

“(B) not inconsistent with the purposes of this Act.

“(c) Requirements.—The costs associated with developing an additional project benefit under this section shall be—

“(1) allocated to the authorized purposes of the structure, provided that agreement on project benefits and allocable costs is reached among state and federal funding agencies; and

“(2) repaid in accordance with all applicable provisions of Federal reclamation law (the Act of June 17, 1902 (32 Stat. 388, chapter 1093), and Acts supplemental to and amendatory of that Act (43 U.S.C. 371 et seq.).”.

(b) San Luis Reservoir Expansion.—Section 103(f)(1)(A) of Public Law 108–361 (118 Stat. 1694) is amended—

(1) by striking “Funds” and inserting the following:

“(i) IN GENERAL.—Funds”; and

(2) by adding at the end the following:

“(ii) ENVIRONMENTAL REVIEWS AND FEASIBILITY STUDY.—The Commissioner of Reclamation shall submit [to Congress]—

“(I) an expansion draft environmental impact statement and feasibility study relating to the San Luis Reservoir by not later than April 1, 2016; and

“(II) a final environmental impact statement relating to the San Luis Reservoir by not later than December 31, 2016.”.

SEC. 406. UPDATING WATER OPERATIONS MANUALS FOR NON-FEDERAL PROJECTS.

(a) Definitions.—In this section:

(1) NON-FEDERAL PROJECT.—

(A) IN GENERAL.—The term “non-Federal project” means a non-Federal reservoir project operated for flood control in accordance with rules prescribed by the Secretary pursuant to section 7 of the Act of December 22, 1944 (commonly known as the “Flood Control Act of 1944”) (58 Stat. 890, chapter 665).

(B) EXCLUSION.—The term “non-Federal project” does not include any dam or reservoir owned by—

(i) the Bureau of Reclamation; or

(ii) the Corps of Engineers.

(2) OWNER.—The term “owner” with respect to a non-Federal project, does not include—

(A) the Secretary;

Commented [A39]: Allocating the costs of additional storage benefits among all authorized purposes potentially has the taxpayer supporting a portion of the cost of additional storage. Any additional costs of additional storage should be paid by those receiving the benefit. Stand ready to work with the bill author to address these concerns.

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(B) the Secretary of the Interior; or

(C) the head of any other Federal department or agency, notwithstanding any Federal monetary contribution made toward the construction cost of the relevant non-Federal project, if the contribution is predicated on flood control or other specific benefit.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Army.

(b) Review by Secretary.—

(1) IN GENERAL.—Not later than 1 year after the date of receipt of a request from the owner of a non-Federal project, the Secretary, in consultation with the owner, shall review the water control manual and flood control rule curves and any operational or structural modifications proposed by the owner, including the use of improved weather forecasting and run-off forecasting methods, to enhance the existing purposes of the non-Federal project.

(2) REPORT.—Not later than 90 days after the date of completion of a review under paragraph (1), the Secretary shall submit to the owner of the applicable non-Federal project a report describing the results of the review.

(3) PRIORITY.—In carrying out of this subsection, the Secretary shall give priority to review and revision of water control manuals and flood control rule curves for any non-Federal project—

(A) that is located in a State in which a drought emergency has been declared during the 1-year period ending on the date of review by the Secretary;

(B) the owner of which has submitted to the Secretary a formal request to review or revise the operations manual or rule curves to accommodate new watershed data or proposed project modifications or operational changes;

(C) the water control manual and hydrometeorological information establishing the flood control rule curves of which have not been revised during the 20-year period ending on the date of review by the Secretary;

(D) with respect to which a completed probable maximum flood analysis or other data indicates that revisions of the project control manual or rule curves are likely to enhance water supply benefits and flood control operations; and

(E) modifications or operational changes proposed by the owner of which are likely to enhance water supply benefits and flood control operations.

(4) NON-FEDERAL CONTRIBUTIONS.—The Secretary may accept non-Federal funds for all or a portion of the cost of carrying out a review or revision of water control manuals and rule curves for non-Federal projects under this subsection.

SEC. 407. CENTRAL VALLEY PROJECT.

(a) Cooperative Agreements.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, to

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determine the feasibility of an agreement for long-term use of an existing or expanded non-Federal storage or conveyance facility to augment Federal water supply, ecosystem, and operational flexibility benefits, the Secretary shall offer to enter into cooperative agreements with non-Federal entities to provide replacement water supplies for drought relief for—

(A) contractors of the Central Valley Project (as defined in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706));

(B) units of the National Wildlife Refuge System;

(C) State wildlife areas; and

(D) private wetland areas.

(2) REQUIREMENTS.—A cooperative agreement under this subsection shall—

(A) include the purchase of storage capacity in non-Federal facilities from willing sellers; and

(B) provide reimbursement for the temporary use of available capacity in existing above-ground, off-stream storage and associated conveyance facilities owned by local water agencies.

(b) Report.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Chief of the National Wildlife Refuge System and contractors of the Central Valley Project a report describing the feasibility of the agreement for long-term use described in subsection (a)(1).

TITLE V—WATER RIGHTS PROTECTIONS

SEC. 501. PROTECTIONS FOR STATE WATER PROJECT CONTRACTORS.

If, as a result of the application of this Act, the California Department of Fish and Wildlife:

(a) revokes the consistency determination pursuant to California Fish and Game Code section 2080.1;

(b) amends or issues a new consistency determination pursuant to California Fish and Game Code section 2080.1 in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion; or

(c) requires take authorization under section 2081 for operation of the State Water Project in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion,

the water supply benefits of such action by the California Department of Fish and Wildlife

Commented [A40]: We have not had a chance to fully analyze this Title. We will however continue to evaluate this section and reserve our rights with respect to the ability to provide technical feedback at that time.

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accruing to the Central Valley Project, if any, shall be shared equally with the State Water Project.

SEC. 502. AREA OF ORIGIN PROTECTIONS.

(a) The Secretary of the Interior (Secretary) is directed in the operation of the Central Valley Project (CVP) to adhere to California's water rights laws governing water rights priorities by honoring water rights senior to those held by the United States for operation of the CVP, regardless of the source of priority, including any appropriative water rights initiated prior to December 19, 1914, as well as water rights and other priorities perfected or to be perfected pursuant to California Water Code Part 2 of Division 2. Article 1.7 (commencing with section 1215 of Chapter 1 of Part 2 of Division 2, Sections 10505, 10505.5, 11128, 11460, 11461, 11462 and 11463, and Sections 12200 to 12220, inclusive).

(b) Any action that requires that diversions be bypassed or that involves the release of water from any CVP water storage facility taken by the Secretary or the Secretary of the Department of Commerce pursuant to Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531, et seq.) shall be applied in a manner that is consistent with water rights priorities established by California law.

SEC. 503. NO REDIRECTED ADVERSE IMPACTS.

The Secretary shall ensure that, except as otherwise provided for in a water service or repayment contract, actions taken in compliance with legal obligations imposed pursuant to or as a result of this Act, including, but not limited to, such actions under the Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.) and other federal laws, shall not cause redirected adverse water supply or fiscal impacts to those within the Sacramento River Watershed or the State Water Project.

SEC. 504. EFFECT ON STATE LAWS.

Nothing in this Act preempts any State law in effect on the date of enactment of this Act, including area of origin and other water rights protections.

TITLE VI—MISCELLANEOUS

SEC. 601. AUTHORIZED SERVICE AREA.

(a) In General.—The authorized service area of the Central Valley Project authorized under the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) shall include the area within the boundaries of the Kettleman City Community Services District, California, as in existence on the date of enactment of this Act.

(b) Long-term Contract.—

(1) IN GENERAL.—Notwithstanding the Central Valley Project Improvement Act (Public

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Law 102–575; 106 Stat. 4706) and subject to paragraph (2), the Secretary of the Interior, in accordance with the reclamation laws, shall enter into a long-term contract with the Kettleman City Community Services District, California, under terms and conditions mutually agreeable to the parties, for the delivery of up to 900 acre-feet of Central Valley Project water for municipal and industrial use.

(2) LIMITATION.—Central Valley Project water deliveries authorized under the contract entered into under paragraph (1) shall be limited to the minimal quantity necessary to meet the immediate needs of the Kettleman City Community Services District, California, in the event that local supplies or State Water Project allocations are insufficient to meet those needs.

(c) Permit.—The Secretary shall apply for a permit with the State for a joint place of use [for water deliveries authorized under the contract entered into under subsection (b)? with respect to the expanded service area under subsection (a)?], consistent with State law.

(d) Additional Costs.—If any additional infrastructure, water treatment, or related costs are needed to implement this section, those costs shall be the responsibility of the non-Federal entity.

SEC. 602. RESCHEDULED WATER.

(a) In General.—In connection with operations of the Central Valley Project, California, if the San Luis Reservoir does not fill by the last day of February of any year, the Secretary of the Interior shall permit any entity with an agricultural water service or repayment contract for the delivery of water from the Delta Division or the San Luis Unit to reschedule into the immediately following contract year (March 1 through the last day of February) any unused Central Valley Project water previously allocated for irrigation purposes.

(b) Apportionment.—If water remaining in Federal storage in San Luis Reservoir on the last day of February of any year is insufficient to meet all rescheduling requests under subsection (a), the Secretary of the Interior shall, based on contract quantity, apportion among all contractors that request to reschedule water all water remaining in San Luis Reservoir on the last day of February of the applicable year.

(c) Availability of Additional Water.—The Secretary shall make all reasonable efforts to make available additional rescheduled water, if the efforts do not interfere with the Central Valley Project operations in the contract year for which Central Valley Project water has been rescheduled.

SEC. 603. FISHERIES DISASTER DECLARATION.

[TO BE SUPPLIED.]

SEC. 604. OVERSIGHT BOARD FOR RESTORATION FUND.

(a) Report; Advisory Board.—Section 3407 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4726) is amended by adding at the end the following:

“(g) Report on Expenditure of Funds.—

Commented [A41]: Language has not been provided and the Administration is unable to make recommendations.

Commented [A42]: Still reviewing and per note below reserve the right to provide additional feedback.

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“(1) IN GENERAL.—For each fiscal year, the Secretary, in consultation with the Advisory Board, shall submit to Congress a plan for the expenditure of all of the funds deposited into the Restoration Fund during the preceding fiscal year.

“(2) CONTENTS.—The plan shall include an analysis of the cost-effectiveness of each expenditure.

“(h) Advisory Board.—

“(1) ESTABLISHMENT.—There is established the Restoration Fund Advisory Board (referred to in this section as the ‘Advisory Board’), which shall be composed of 14 members appointed by the Secretary.

“(2) MEMBERSHIP.—

“(A) IN GENERAL.—The Secretary shall appoint members to the Advisory Board that represent the various Central Valley Project stakeholders, of whom—

“(i) 3 members shall be agricultural users of the Central Valley Project;

“(ii) 2 members shall be municipal and industrial users of the Central Valley Project;

“(iii) 3 members shall be power contractors of the Central Valley Project;

“(iv) 1 member shall be a representative of a federal wildlife refuge that contracts for Central Valley Project water supplies with the Bureau of Reclamation;

“(v) 1 member shall represent nongovernmental organizations involved in the protection and restoration of California fisheries;

“(vi) 1 member shall represent the commercial fishing industry;

“(vii) 1 member shall represent the recreational fishing industry; and

“(viii) 2 members shall be appointed at the discretion of the Secretary.

“(B) OBSERVER.—The Secretary and the Secretary of Commerce may each designate a representative to act as an observer of the Advisory Board.

“(C) CHAIRMAN.—The Secretary shall appoint 1 of the members described in subparagraph (A) to serve as Chairman of the Advisory Board.

“(3) TERMS.—The term of each member of the Advisory Board shall be 4 years.

“(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

“(5) Vacancies.—

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(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(C) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

“(6) Removal —A Member of the Panel may be removed from office by the Secretary of the Interior.

“(7) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act.

“(8) DUTIES.—The duties of the Advisory Board are—

“(A) to meet not less frequently than semiannually to develop and make recommendations to the Secretary regarding priorities and spending levels on projects and programs carried out under this title;

“(B) to ensure that any advice given or recommendation made by the Advisory Board reflects the independent judgment of the Advisory Board;

“(C) not later than December 31, 2015, and annually thereafter, to submit to the Secretary and Congress the recommendations under subparagraph (A); and

“(D) not later than December 31, 2015, and biennially thereafter, to submit to Congress a report that details the progress made in achieving the actions required under section 3406.

“(9) ADMINISTRATION.—With the consent of the appropriate agency head, the Advisory Board may use the facilities and services of any Federal agency.”

“(10) Cooperation and Assistance.—

(A) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(B) Space and Assistance.—The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 605. WATER OPERATIONS REVIEW PANEL.

(a) Establishment.—There is established a panel to be known as the “Water Operations Review Panel”.

(b) Membership.—

(1) COMPOSITION.—The Panel shall be composed of 5 members appointed by the

Commented [A43]: There may be unintended consequences to waving FACA. May want to consider some of the organizational/structural aspects of FACA.

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Secretary of the Interior, in consultation with the Secretary of Commerce, of whom—

(A) 1 member shall be a former State elected official, who shall be the Chairperson of the Panel;

(B) 2 members shall be fisheries biologists, of whom—

(i) 1 member shall have expertise in Delta smelt; and

(ii) 1 member shall have expertise in salmonids; and

(C) 2 members shall ~~have~~ be engineers with substantial expertise in water operations.

(2) RECOMMENDATIONS. —The Secretary of the Interior shall consider the recommendations

(A) of the Governor of the State for the member appointed under subparagraph (1)(A);

(B) of the Director of the California Department of Water Resources for one of the members appointed under subparagraph (1)(C).

(3) PROHIBITION ON FEDERAL GOVERNMENT EMPLOYMENT.—For at least three years prior to appointment to the Panel, an individual appointed to the Panel under paragraph (1) shall not have been an employee of the Federal Government.

(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

(c) Term; Vacancies.—

(1) TERMS.—A member of the Panel shall be appointed for a term of 3 years, except that, with respect to the members first appointed under this section—

(A) the Chairperson shall be appointed for a term of 3 years;

(B) of the members appointed under subsection (b)(1)(B)—

(i) 1 member shall be appointed for a term of 1 year; and

(iii) 1 member shall be appointed for a term of 2 years;

(C) of the members appointed under subsection (b)(1)(C)—

(i) 1 member shall be appointed for a term of 1 year; and

(ii) 1 member shall be appointed for a term of 2 years.

(2) VACANCIES.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

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(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(3) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

(d) Removal. —A Member of the Panel may be removed from office by the Secretary of the Interior.

(e) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act

(f) Duties.

(1) Assessment and Report on Agencies' Operational Decisions under this Act.—

(A) IN GENERAL.—No later than November 30, 2015, and annually no later than November 30 thereafter, the Panel shall report an assessment of the agencies' operational decisions under this Act and recommendations for the prospective implementation of this Act to the following Congressional committees:

(i) Senate Committee on Environment and Public Works;

(ii) Senate Appropriations Subcommittee on Energy and Water Development;

(iii) House Natural Resources Committee; and

(iv) House Appropriations Subcommittee on Energy and Water Development.

(B) RETROSPECTIVE ASSESSMENT.—In making the retrospective assessment under paragraph (1), the Panel shall review and evaluate the Director of the Fish and Wildlife Service, Administrator of NOAA Fisheries, and Commissioner of Reclamation's —

(i) decisions in implementing this Act and other Federal laws applicable to the operations of the Central Valley Project and the State Water Project;

(ii) compliance with the Endangered Species Act in relation to operations of the Central Valley Project and the State Water Project; and

(iii) efforts to minimize water supply disruptions while complying with the Endangered Species Act and this Act.

(C) PROSPECTIVE RECOMMENDATIONS.—The Panel shall make recommendations for prospective actions and potential actions warranting further study to better achieve the purposes of this Act and the Endangered Species Act as applied to the operations of the Central Valley Project and the State Water Project, including proposals—

(i) that in combination, both increase the survival of listed species and increase water supplies for the Central Valley Project and the State Water Project;

(ii) to increase the survival of listed fish species with little to no adverse effects on water supplies for the Central Valley Project and the State Water Project;

(iii) to increase such water supplies with little to no adverse effects on the survival of listed fish species; and

Commented [A44]: There may be unintended consequences to waving FACA. May want to consider some of the organizational/structural aspects of FACA.

Commented [A45]: Compared to what? Their 100% allocations? The average of the last 5 years? Allocation from the same water year type in the past?

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(iv) that respond to the annual Delta Science Program Independent Review Panel reports on the Long-term Operations Opinions.

(2) Submission of Comments and Proposals to Panel.—

(A) IN GENERAL.—In preparing the reports under subsections (a) and (b), the Panel shall invite comments and proposals from any interested person.

(B) SCHEDULE.—The Panel shall publish a schedule for receipt of comments and proposals under paragraph (1), together with instructions for how to submit the comments and proposals.

(f) Cooperation and Assistance. ---

(1) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of Commerce and the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(2) Space and Assistance --- The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 606. CONTINGENCY IN EVENT OF CONTINUING RESOLUTION FOR FISCAL YEAR 2015.

If a resolution providing continuing appropriations for the Fish and Wildlife Service or the National Marine Fisheries Service for fiscal year 2015 is enacted for any date on or after January 1, 2015, and the Secretaries have consulted with the California Department of Water Resources, Central Valley Project and State Water Project contractors, and the Interagency Ecological Program about any possible funding shortfall, the deadlines that apply to each respective Secretary, or agency, contained in sections _____ shall be extended by the number of days such resolution providing continuing appropriations applied to each agency.

SEC. 607. SUNSET OF CERTAIN PROVISIONS.

The provisions in Titles I and II, with the exception of sections 204 and 205, shall expire if, at any time seven or more years after the date of enactment of this Act, the Secretary of the Interior and the Governor of California jointly certify that:

1) The water supply reliability of the Central Valley Project and the State Water Project has significantly improved since prior to the date of enactment of this Act, independent of

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changes in precipitation or differences in hydrological year classifications; and

2) Such improvement in water supply reliability is likely to be durable for at least a decade.

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SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT

Commented [A46]: Suggested Alternative Language we have previously provided.

(1) IN GENERAL.—In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such the severe drought remains in effect as determined by the United States Drought Monitor, the Secretaries shall seek to enhance operational flexibility in the operations of the CVP and the State Water Project to alleviate the adverse effects of the drought on water supplies, imperiled species, and water quality through the development of a 2015 Drought Operations Plan. This 2015 Drought Operations Plan, consistent will applicable law, will seek to provide the maximum quantity of water supplies possible to Central Valley Project agricultural, municipal and industrial, and refuge water service and repayment contractors, State Water Project contractors, and any other locality or municipality in the State, by approving, consistent with applicable federal and state laws (including regulations) and protection of public health and safety, projects and operations to provide additional water supplies as quickly as possible based on the best scientific information available to address the emergency conditions.

(a) Preparation of a Drought Operations Plan - The Secretaries shall develop and implement a Drought Operations Plan by March 1 that maximizes water deliveries for CVP and SWP contractors while also meeting all applicable legal standards, including those established in this Act. The Secretaries shall be authorized to make adjustments to the plan during the water year based on changes in hydrology or as conditions warrant. The Secretaries shall be authorized to make adjustments consistent with applicable law and regulations prior to March 1st, as necessary to meet the purposes of this section.

(b) Plan Content. —In carrying out subsection (a), the Secretaries shall, consistent with applicable laws and regulations,

- i. Evaluate new information on species distribution through enhanced monitoring and/or modeling;
- ii. Identify operations, with accompanying modelling, necessary to preserve cold water in reservoirs for salmon needs while maintaining Delta needs;
- iii. Identify modification to Delta cross channel gate operations, to address adverse effects of operations on water quality or fish migrations as per Operations in the 2014 Drought Operations Plan;
- iv. Encourage the CVP to vary the export/info ratio as per D-1641 Operations in the 2014 Drought Operations Plan;
- v. Analyze potential operational scenarios during early season storms that may occur prior to January 1, 2015, including a scenario for -7500 cfs average OMR during

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- 1 December 2014, and alternative scenarios that might be implemented in the event
2 environmental conditions or fish distribution indicate that the thresholds and
3 criteria triggering Component 1, Action 1 of the 2008 FWS operations BiOp
4 might soon be met.
5 vi. Monitor and act upon the declaration of critically dry years for purposes of
6 enabling the use of the San Joaquin April-May 1:1 inflow/export ratio to enhance
7 early spring exports;
8 vii. Consider, through the NMFS adaptive management 2009 BiOp provisions,
9 adjustment to the San Joaquin I:E ratio to provide for San Joaquin origin water
10 transfers to be exported at a 1:1 ratio irrespective of water year type, including
11 any additional monitoring, operational adjustments or offsets that may be needed
12 to conserve species;
13 viii. Consider, through the NMFS adaptive management 2009 BiOp provisions,
14 adjustment of the January 1st on-set of -5000 OMR to reflect real-time migration
15 information on Winter-run Chinook salmon;
16 ix. Identify any temporary emergency barriers that may be needed for purposes of
17 salinity control; and
18 x. Identify other actions necessary to conserve species, including additional
19 monitoring, hatchery and/or habitat actions.

20 (2) APPLICATION.— In addition to the Central Valley Project, paragraph (1) also applies to
21 projects or operations involving the Klamath Project if the projects or operations would benefit
22 Federal water service and repayment contractors in California.

23 (b) Limitation.—Nothing in this section allows agencies to approve projects—

24 (1) that would otherwise require congressional authorization; or

25 (2) without following applicable law and regulations.
26

From: Watts, John (Feinstein)
Sent: Monday, September 29, 2014 9:17 AM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: FW: Proposed revised language for finding 16

I have revised finding # 16 to more narrowly and factually state what the studies found. It is important to us to mention these studies, since the presence of new scientific information is a key part of the rationale for the bill and its proposed reexamination of what measures can protect the fish while minimizing water supply disruptions. Does this look OK to you?

(16) Since the issuance of the biological opinions, recent studies have raised questions about the benefits to endangered salmonid populations from water pumping restrictions, including:

- a) Expert panel reviews have concluded that instantaneous water velocities in the tidal Delta affect juvenile salmonids, not “tidally average” flows, as previously assumed. Based on instantaneous water velocity modeling, water exports have a much smaller area of effect than was previously believed.
- b) Tagging studies conducted since 1993 (representing more than 28 million fish) demonstrate that the proportion of Sacramento Basin origin Chinook salmon entrained into the pumping facilities (including pre-screen losses) are on average less than 1/10 of 1%; and
- c) Telemetric studies of Sacramento Basin and San Joaquin Basin origin juvenile Chinook salmon have not demonstrated any significant adverse effect from water exports on fish survival.

From: Tom Birmingham

Sent: Monday, September 29, 2014 10:23 AM

To: 'Watts, John (Feinstein)'; 'Yeung, Felix (Feinstein)'; DBernhardt@BHFS.com; [REDACTED]; [REDACTED]

Subject: Sunset Provision

Attachments: Sunset Provision.docx

John, et al.,

Attached is my proposed revision to the sunset provision we discussed this morning.

Thank you,
Tom

SEC. 607. SUNSET OF CERTAIN PROVISIONS.

The provisions in Titles I and II, with the exception of sections 204 and 205, shall expire if, at any time seven or more years after the date of enactment of this Act, the Secretary of the Interior and the Governor of California jointly certify that:

- 1) The reliability and adequacy of Central Valley Project and State Water Project water supplies for meeting the needs for reasonable and beneficial uses of water ~~y reliability of the Central Valley Project and the State Water Project~~ have s-significantly improved since prior to the date of enactment of this Act, independent of changes in precipitation or differences in hydrological year classifications; and
- 2) Such improvement in water supply reliability and adequacy are ~~is~~ likely to be durable for at least a decade.

From: Watts, John (Feinstein)

Sent: Monday, September 29, 2014 1:52 PM

To: 'Tom Birmingham'; Yeung, Felix (Feinstein); DBernhardt@BHFS.com; [REDACTED]; [REDACTED]

Subject: RE: Sunset Provision

Tom, This language looks good. Can you call me when you get a chance? Thanks.

From: Tom Birmingham [mailto:tbirmingham@westlandswater.org]

Sent: Monday, September 29, 2014 1:23 PM

To: Watts, John (Feinstein); Yeung, Felix (Feinstein); DBernhardt@BHFS.com; [REDACTED]; [REDACTED]

Subject: Sunset Provision

John, et al.,

Attached is my proposed revision to the sunset provision we discussed this morning.

Thank you,
Tom

From: Watts, John (Feinstein)
Sent: Monday, September 29, 2014 3:30 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: DOI's response on smelt issue

(4) show in writing that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid a negative impact on the long-term survival of the Delta smelt, including an explanation of the data examined and the connection between those data and the choice made, after considering:...

From: Watts, John (Feinstein)
Sent: Monday, September 29, 2014 3:37 PM
To: Bernhardt, David L.
CC: 'Tom Birmingham'
Subject: FW: DOI's response on smelt issue

DOI's language with Tom's proposed edits. Can you get on a conference call with the three of us right now?

From: Watts, John (Feinstein)
Sent: Monday, September 29, 2014 6:30 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: DOI's response on smelt issue

(4) show in writing that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid a negative impact on the long-term survival of the Delta-smelt species, including an explanation of the data examined and the connection between those data and the choice made, after considering:...

From: Watts, John (Feinstein)
Sent: Monday, September 29, 2014 4:14 PM
To: 'Tom Birmingham'; Bernhardt, David L.
Subject: Confidential current draft attached
Attachments: language 9-29-14 7pm.docx

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Title: To provide drought relief in the State of California, and for other purposes.

General Comments

1. We continue to believe that priority should be placed on the development and implementation of a 2015 Drought Operations Plan that can implement changes in operations of the CVP and SWP to improve water supplies in a very serious drought year in a manner that is consistent with the ESA and other applicable law. See alternative to Sec. 303 at the end of the document previously provided.
2. As part of a 2015 Drought Plan, we recommend investing immediately in improvements in monitoring and data gathering in order to enable more precision in operations targeting reductions in negative fish impacts through “real time” operational triggers. To the extend authors of the bill can support this goal in the underlying bill text, we would appreciate it.
3. An unintended consequence of significant new legislative directives is that they pose serious risks of impeding the success of 2015 Drought Operations and by triggering another aggressive round of litigation that will impede flexibility. We appreciate efforts that have been made to reduce litigation risk; however, as noted below there are provisions that we believe invite potential litigation.
4. We recommend against permanent legislation on how the CVP and the ESA should relate, and in particular against locking into permanent law references to specific operating criteria that are tied to specific biological opinions that are highly likely to change over time as circumstances change. We recommend including expiration dates for those titles or sections that are drought-specific or operating criteria specific.
5. In many instances, we do not have the capacity to implement these new directives and continue with other pressing Administration priorities, like the top priority of 2015 drought operations, responding to the biological opinion remand and completing the BDCP. Enactment of these new requirements will significantly displace ongoing priorities.
6. We have questions about some of the findings that we have been unable to confirm at this time due to uncertainty surrounding the source of the data. We will work on confirming these findings early next week but it would be helpful to understand the source of the information on the comments we have flagged. We expressly reserve the right to comment further on the findings at a later time once the source information is determined.

We provide the following technical observations on the legislative text.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

- (a) Short Title.—This Act may be cited as the “California Drought Relief Act of 2014”.
- (b) Table of Contents.—The table of contents of this Act is as follows:

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1 Sec.1.Short title; table of contents.

2 Sec.2.Findings.

3 Sec.3.Definitions.

4 **TITLE I—ADJUSTING DELTA SMELT MANAGEMENT**
5 **BASED ON INCREASED REAL-TIME MONITORING AND**
6 **UPDATED SCIENCE**

7 Sec.101.Definitions.

8 Sec.102.Revise incidental take level calculation to reflect new science.

9 Sec.103.Factoring increased real-time monitoring and updated science into delta smelt
10 management.

11 **TITLE II—ENSURING SALMONID MANAGEMENT IS**
12 **RESPONSIVE TO NEW SCIENCE**

13 Sec.201.Definitions.

14 Sec.202.Required scientific studies.

15 Sec.203.Process for ensuring salmonid management is responsive to new science.

16 Sec.204.Pilot program to protect native anadromous fish in the Stanislaus River.

17 Sec.205.CALFED invasive species pilot projects in the Sacramento-San Joaquin Bay Delta and
18 its tributaries.

19 Sec.206.Mark fishery and harvest management.

20 Sec.207.New actions to benefit Central Valley salmonids.

21 **TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT**
22 **RELIEF**

23 Sec.301.Findings.

24 Sec.302.Definitions.

25 Sec.303.Operational flexibility in times of drought.

26 Sec.304.Operation of cross-channel gates.

27 Sec.305.Flexibility for export/inflow ratio.

28 Sec.306.Emergency environmental reviews.

29 Sec.307.Prioritizing State revolving funds during droughts.

30 Sec.308.Increased flexibility for regular project operations.

31 Sec.309.Temporary operational flexibility for first few storms of 2014-2015 water year.

1 Sec.310.Expediting water transfers.

2 Sec.311.Warren Act contracts. [PLACEHOLDER]

3 Sec.312.Additional Warren Act contracts. [PLACEHOLDER]

4 TITLE IV—INCREASING WATER STORAGE

5 Sec.401.Findings.

6 Sec.402.Calfed storage feasibility studies.

7 Sec.403.Water storage project construction.

8 Sec.404.Other storage feasibility studies.

9 Sec.405.Dam safety projects with increased storage component.

10 Sec.406.Updating water operations manuals for non-Federal projects.

11 Sec.407.Central Valley Project.

12 TITLE V—WATER RIGHTS PROTECTIONS

13 Sec.501.Protections for State water project contractors.

14 Sec.502.Area of origin protections.

15 Sec.503.No redirected adverse impacts.

16 Sec.504.Effect on State laws.

17 TITLE VI—MISCELLANEOUS

18 Sec.601.Authorized service area.

19 Sec.602.Rescheduled water.

20 Sec.603.Fisheries disaster declaration.

21 Sec.604.Oversight board for Restoration Fund.

22 Sec.605.Water operations review panel.

23 Sec.606.Contingency in event of continuing resolution for fiscal year 2015.

24

25 SEC. 2. FINDINGS.

26 Congress finds that—

27 (1) As established in the Proclamation of a State of Emergency issued by the Governor of
28 the State on January 17, 2014, the State is experiencing record dry conditions;

29 (2) Extremely dry conditions have persisted in the State since 2012, and the drought
30 conditions are likely to persist into the future;

31 (3) As of September 2014, the National Weather Service’s forecast does not show a high

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1 likelihood of the State experiencing ~~significant~~ above normal precipitation for the remainder
2 of the calendar year.

3 (4) The water supplies of the State are at record-low levels, as indicated by the fact that
4 all major Central Valley Project reservoir levels were at or below 40 percent of capacity as
5 of September 11, 2014;

6 (5) The lack of precipitation has been a significant contributing factor to the 6,091 fires
7 experienced in the State as of September 15, 2014, and which covered nearly 400,000 acres.

8 (6) According to a study released by the University of California, Davis in July 2014, the
9 drought has led to the fallowing of 428,000 acres of farmland, loss of \$810 million in crop
10 revenue, loss of \$203 million in dairy and other livestock value, and increased groundwater
11 pumping costs by \$454 million. The statewide economic costs are estimated to be \$2.2
12 billion, with over 17,000 seasonal and part-time agricultural jobs lost.

13 (7) CVPIA Level II ~~W~~water deliveries to refuges have also ~~declined~~ been reduced by
14 25% in the north of Delta region, and by 35% in the south of Delta region.

15 (8) Only one-sixth of the usual acres of rice fields are being flooded this fall, which leads
16 to a significant decline in habitat for migratory birds and an increased risk of disease at the
17 remaining wetlands due to overcrowding of such birds.

18 (9) The drought of 2013 through 2014 constitutes a serious emergency that poses
19 immediate and severe risks to human life and safety and to the environment throughout the
20 State;

21 (10) The serious emergency described in paragraph (4) requires—

22 (A) immediate and credible action that respects the complexity of the water system
23 of the State and the importance of the water system to the entire State; and

24 (B) policies that do not pit stakeholders against one another, which history shows
25 only leads to costly litigation that benefits no one and prevents any real solutions;

26 (11) Federal law (including regulations) directly authorizes expedited decisionmaking
27 procedures and environmental and public review procedures to enable timely and
28 appropriate implementation of actions to respond to the type and severity of the serious
29 emergency described in paragraph (4); and

30 (12) The serious emergency described in paragraph (4) fully satisfies the conditions
31 necessary for the exercise of emergency decisionmaking, analytical, and public review
32 requirements under—

33 (A) the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

34 (B) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.);

35 (C) water control management procedures of the Corps of Engineers described in
36 section 222.5 of title 33, Code of Federal Regulations (including successor
37 regulations); and

38 (D) the Reclamation States Emergency Drought Relief Act of 1991 (Public Law
39 102–250; 106 Stat. 53).

Commented [A1]: This looks a little low now. The smaller CVP reservoirs (Folsom and Millerton) are closer to 35%, but the bigger ones (Shasta, Nimbus, Trinity, San Luis) are down to 20-25%. DOI will work with bill author to help verify and, if appropriate, suggest revisions to language.

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(13) The 2008 smelt biological opinion and 2009 salmonid biological opinion contain reasonable and prudent alternatives to protect endangered-listed fish species from being harmed-jeopardized by operation of the Central Valley Project and State Water Project and to prevent adverse modification of designated critical habitat.

(14) The effect of those reasonable and prudent alternatives in the biological opinions may restrict the amount of water pumping that can occur to deliver water for agricultural, municipal, industrial, groundwater, and refuge uses within the Central Valley of California.

(15) Data on the difference between water demand and reliable water supplies for various regions south of the delta, including the San Joaquin Valley, indicate there is a significant annual gap between reliable water supplies to meet agricultural, municipal and industrial, groundwater, and refuges water needs within the South of Delta and Friant Division of the Central Valley Project and the State Water Project south of the Sacramento-San Joaquin River Delta and north of the Tehachapi mountain range and the demands of those areas. This gap varies depending on the methodology of the analysis performed, but can be represented in the following ways:

(a) For Central Valley Project South-of-Delta water service contractors, if it is assumed that a water supply deficit is the difference in the amount of water available for allocation versus the maximum contract quantity, particularly in more recent years, then the water supply deficits that have developed from 1992 to 2014 as a result of changes besides natural variations in hydrology during this timeframe range between 720,000 and 1,100,000 acre-feet.

(b) For Central Valley Project and State Water Project water service contractors south of the Delta and north of the Tehachapi mountain range, if it is assumed that a water supply deficit is the difference between reliable water supplies, including maximum water contract deliveries, safe yield of groundwater, safe yield of local and surface supplies and long-term contracted water transfers, and water demands, including water demands from agriculture, municipal and industrial and refuge contractors, then the water supply deficit ranges between approximately 2,500,000 to 2,700,000 acre-feet.

(c) The California Water Plan evaluated outcomes under current conditions under 198 combinations of climate and growth scenarios, projecting a range of urban and agricultural reliability into the future. Reliability in this instance is defined as the percentage of years in which demand is sufficiently met by supply. Reliability across a range of futures within the San Joaquin Valley can be presented as:

(1) For the San Joaquin River Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 90 and 100 percent, with a mean reliability across futures in the high 90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile.

Commented [A2]: Need to verify the accuracy of these assertions of fact in this and subsequent paragraphs. Administration stands ready to help verify.

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(2) For the Tulare Lake Hydrologic Region, as defined in the California Water Plan, reliability ranges from:

(A) For urban supply reliability, reliability ranges between 70 and 100 percent, with a mean reliability across futures in the mid-90th percentile; and

(B) For agricultural supply reliability, reliability ranges between 20 and 100 percent, with a mean reliability across futures in the low 70th percentile.

(16) Since the issuance of the biological opinions, considerably uncertainty still exists about the benefits to ~~endangered~~ listed fish populations from water pumping restrictions. For example, hydrodynamic data, acoustic telemetry studies, and other recent studies found that through-Delta survival rates of salmonid species do not correlate directly and clearly with certain water pumping restrictions, in particular limitations to Old and Middle River flows to levels less negative than -5,000 cubic feet per second.

(17) Data of pumping activities at the Central Valley Project and State Water Project delta pumps identifies that, on average from 2008 to 2014, pumping activity takes 893 delta smelt annually with an authorized take level of 5,003 delta smelt annually – according to the biological opinion issued December 15, 2008.

(18) It is worth exploring whether there is a way to implement the biological opinions that would preserve the protections afforded listed ~~endangered~~ fish and simultaneously increase water deliveries to the Central Valley Project and State Water Project without weakening environmental laws or protections.

(19) In 2014, better information exists than was known in 2008 concerning conditions and operations that may or may not lead to high salvage events that jeopardize the fish populations, and what alternative management actions can be taken to avoid jeopardy.

(20) Alternative management strategies, such as trapping and barging juvenile salmon through the Delta, removing non-native species, enhancing habitat, and monitoring fish movement and location in real-time can contribute significantly to protecting and recovering these endangered fish species, and at potentially lower costs to water supplies.

(21) Resolution of fundamental policy questions concerning the extent to which application of the Endangered Species Act affects the operation of the Central Valley Project and State Water Project is the responsibility of Congress.

SEC. 3. DEFINITIONS.

In this Act:

(1) DELTA.—The term “Delta” means the Sacramento-San Joaquin Delta and the Suisun Marsh, as defined in sections 12220 and 29101 of the California Public Resources Code.

(2) Export Pumping Rates.—The term “export pumping rates” means the rates of pumping at the W.C. “Bill” Jones Pumping Plant and the Harvey O. Banks Pumping Plant, in the southern Delta.

(3) JEOPARDY.—The term “jeopardy” means to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction,

Commented [A3]: We agree with the first sentence. We do not agree with the second and recommend its deletion. There are direct correlations between negative OMRs and raw salvage. We acknowledge that disagreements exist around these correlations and their significance – a central topic in the active litigation now pending before the 9th Circuit Court of Appeals.

Commented [A4]: We need to verify this with bill author.

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numbers, or distribution of that species.

(4) OMR.—The term “OMR” means the Old and Middle River in the Delta.

(5) OMR FLOW OF -5000 CFS.—The term “OMR flow of -5000 cfs” means Old and Middle River flow of negative 5,000 cubic feet per second as measured by—

(A) the smelt biological opinion; and

(B) the salmonid biological opinion.

(6) SALMONID BIOLOGICAL OPINION.—The term “salmonid biological opinion” means the biological opinion issued by the National Marine Fisheries Service on June 4, 2009.

(7) SMELT BIOLOGICAL OPINION.—The term “smelt biological opinion” means the biological opinion on the Long-Term Operational Criteria and Plan for coordination of the Central Valley Project and State Water Project issued by the United States Fish and Wildlife Service on December 15, 2008.

(8) STATE.—The term “State” means the State of California.

**TITLE I—ADJUSTING DELTA SMELT MANAGEMENT
BASED ON INCREASED REAL-TIME MONITORING AND
UPDATED SCIENCE**

SEC. 101. DEFINITIONS.

In this title:

(1) DIRECTOR.—The term “Director” means the Director of the United States Fish and Wildlife Service.

(2) DELTA SMELT.—The term “delta smelt” means the fish species with the scientific name *Hypomesus transpacificus*.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Interior.

**SEC. 102. REVISE INCIDENTAL TAKE LEVEL CALCULATION FOR DELTA
SMELT TO REFLECT NEW SCIENCE.**

No later than October 1, 2015, the Director of Fish and Wildlife Service, in cooperation with other federal, state, and local agencies, shall use the best scientific and commercial data available to complete a review and, if warranted, a modification of the incidental take level in the 2008 delta smelt biological opinion that takes into account, among other considerations,—

- (a) salvage information available over at least 18 years;
- (b) updated or more recently developed statistical models;
- (c) updated scientific and commercial data; and

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(d) the most recent information regarding the environmental factors driving delta smelt salvage.

SEC. 103. FACTORING INCREASED REAL-TIME MONITORING AND UPDATED SCIENCE INTO DELTA SMELT MANAGEMENT.

(a) In General.—The reasonable and prudent alternatives described in the 2008 delta smelt biological opinion, as amended, and any successor opinions shall be implemented consistent with current best scientific and commercial data available, and implementation shall be adjusted accordingly as new scientific and commercial data are developed.

(b) Increased Monitoring to Inform Real-time Operations.— Contingent upon funding, the Secretary shall conduct additional surveys, on an annual basis at the appropriate time of the year based on environmental conditions, in collaboration with other delta science interests.

(1) In implementing this section, after seeking public input, the Secretary shall —

(A) use the most appropriate survey methods for the detection of delta smelt to determine the extent that adult delta smelt are distributed in relation to certain levels of turbidity, or other environmental factors that may influence salvage rate; and

(B) use results from appropriate survey methods for the detection of delta smelt to determine how the Central Valley Project and State Water Project may be operated more efficiently to minimize salvage while maximizing rates of water export.

(2) During the period beginning on December 1, 2014 and ending March 31, 2015, and in each successive December through March period, if suspended sediment loads enter the Delta from the Sacramento River and the suspended sediment loads appear likely to raise turbidity levels in Old River north of the export pumps from values below 12 Nephelometric Turbidity Units (NTU) to values above 12 NTU, the Secretary shall—

(A) conduct daily monitoring using appropriate survey methods at locations including, but not limited to, the vicinity of Station 902 to determine the extent that adult Delta smelt are moving with turbidity toward the export pumps; and

(B) use results from the monitoring surveys at locations including, but not limited to, the vicinity of Station 902 to determine how increased trawling can inform daily real-time Central Valley Project and State Water Project operations to minimize salvage while maximizing rates of water export.

(c) Periodic Review of Monitoring.—At least once every 5 years, or sooner if the Secretary determines it is appropriate, the Secretary shall—

(1) evaluate whether the monitoring program under subsection (b), combined with other monitoring programs for the Delta, is providing sufficient data to inform Central Valley Project and State Water Project operations to minimize salvage while

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maximizing rates of water export; and

(2) determine whether the monitoring efforts should be changed in the short- or long-term to provide more useful data.

(d) Delta Smelt Distribution Study.—

(1) IN GENERAL.— No later than January 1, 2016, contingent upon funding, the Secretary, in collaboration with Delta science partners, shall implement new targeted sampling and monitoring specifically designed to understand delta smelt abundance, distribution, and the types of habitat occupied by delta smelt during all life stages.

(2) SAMPLING.—The Delta smelt distribution study shall, at a minimum—

(A) include recording water quality and tidal data;

(B) be designed to understand delta smelt abundance, distribution, habitat use, and movements throughout the Bay Delta during all seasons;

(C) consider areas not routinely sampled by existing monitoring programs, including wetland channels, near-shore water, depths below 35 feet, and shallow-water; and

(D) use the most biologically appropriate survey methods, including sampling gear suited to the type of sampling or monitoring.

(e) Scientifically supported implementation of Old and Middle River Flow requirements.—In implementing the provisions of the smelt biological opinion, or any successor biological opinion, on reverse flow in the Old and Middle Rivers, the Secretary shall—

(1) consider the relevant provisions of the biological opinion or any successor biological opinion;

(2) manage reverse flow in Old and Middle Rivers as prescribed by the smelt biological opinion, or any successor biological opinion, to minimize water supply reductions for the Central Valley Project and the State Water Project;

(3) document in writing any significant facts about real-time conditions relevant to the determinations of reverse OMR flow rates, including—

(A) whether targeted real-time fish monitoring in Old River pursuant to this section, including monitoring in the vicinity of Station 902, indicates that a significant increase in the salvage of delta smelt is imminent; and

(B) whether near-term forecasts with available salvage models show under prevailing conditions that OMR flow of -5000 cubic feet per second will cause significantly increased take of delta smelt; and

(4) show in writing that any determination to manage OMR reverse flow at rates less negative than -5000 cubic feet per second is necessary to avoid adverse a significant

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1 ~~population level effects a negative impact on the long-term survival of the Delta smelt~~
2 ~~that are significant at the population level,~~ including an explanation of the data examined
3 and the connection between those data and the choice made, after considering:

4 (A) the findings in paragraph (3);

5 (B) whether continued project operations over the remainder of the water
6 year would exceed the incidental take level;

7 (C) the potential effects of entrainment on subsequent smelt abundance,
8 including consideration of the distribution of the population throughout the
9 Delta,

10 (D) the water temperature,

11 (E) other factors relevant to the determination; and

12 (F) whether any alternative measures could have a lesser water supply
13 impact; and

14 (5) for any subsequent biological opinion, make the showing required in paragraph (4)
15 for any determination to manage OMR reverse flow at rates less negative than the upper
16 limit in the biological opinion.

17 (f) Memorandum of Understanding. No later than December 1, 2014, the Commissioner
18 and the Director will execute of Memorandum of Understanding (MOU) to ensure that
19 the smelt biological opinion is implemented in a manner that minimizes water supply
20 losses while complying with applicable laws and regulations. If that MOU alters any
21 procedures set out in the biological opinion, there will be no need to reinstate
22 consultation if those changes do not have an adverse effect on listed species and the
23 implementation of the MOU would not be a major change to implementation of the
24 biological opinion. Any change to procedures that does not create a new adverse effect
25 to listed species will not alter the application of the take exemption in the incidental take
26 statement in parties' take coverage under the biological opinion under ESA Section
27 7(o)(2).

29 TITLE II—ENSURING SALMONID MANAGEMENT IS
30 RESPONSIVE TO NEW SCIENCE

31 SEC. 201. DEFINITIONS.

32 In this title:

33 (1) ASSISTANT ADMINISTRATOR.—The term “Assistant Administrator” means the
34 Assistant Administrator of NOAA Fisheries..

35 (2) LISTED SALMONID SPECIES.—The term “listed salmonid species” means natural origin

Commented [A5]: We recommend against using the standard of “significant population level effect” as a standard by which to establish specific operational criteria. We suggest “necessary to avoid adversely affecting Delta smelt”, consistent with the MOU language, below.

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steelhead, natural origin genetic spring run Chinook, and genetic winter run Chinook salmon smolts.

(3) SECRETARY.—The term “Secretary” means the Secretary of Commerce.

SEC. 202. REQUIRED SCIENTIFIC STUDIES.

(a) Trap and Barge Pilot Project to Increase Survivals Through the Delta.—The Assistant Administrator and the Commissioner shall, in collaboration with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife and other interested parties, design, permit, implement and evaluate a pilot program to test the efficacy of an experimental trap and barge program to improve survivals of juvenile salmonids emigrating from the San Joaquin watershed through the Delta, as further described below.

(1) Within 30 days of enactment, the Assistant Administrator shall convene a working group of the relevant agencies and other interested parties through which to develop and execute a plan for the design, budgeting, implementation and evaluation of such a pilot program, utilizing existing expertise on such trap and barge programs as may be available. Such plan shall detail a schedule and budget for the program, and identify the responsible parties for each element of the program.

(2) The Assistant Administrator shall provide an opportunity for public review and comment on the pilot program and also simultaneously seek an expeditious independent peer review of the program to improve its rigor and likelihood of success.

(3) Upon completion of (2), above, the Assistant Administrator shall complete the necessary design and evaluations of the pilot program and seek such authorizations and permits as may be required for its prompt implementation and evaluation by the Assistant Administrator, the Commissioner or such other parties as they determine most suitable.

(4) Subject to the availability of funding, the Assistant Administrator and the Commissioner shall seek to commence implementation of the pilot program in 2015 or as soon thereafter as is possible, and shall conduct such pilot for such period of time as needed to evaluate the efficacy of the program to improve survivals across a range of environmental conditions.

(5) The Assistant Administrator and the Commissioner shall jointly report annually to the Senate Environment and Public Works Committee and the House Committee on Natural Resources their progress in implementing this section, estimated survival rates through the Delta for both juvenile salmonids that were barged through the Delta and those that were not barged, and if survival rates are significantly higher for barged fish as compared to other outmigrating smolts, the Assistant Administrator and Commissioner’s recommendations regarding broadening the pilot program, and adjusting the provisions of the salmonid biological opinion pursuant to section 203.

(b) Tagging studies.

(1) IN GENERAL.—The Assistant Administrator, in collaboration with other delta science partners, shall implement tagging studies, including acoustic telemetry and PIT tagging studies as appropriate, wherein habitat, predators, flow conditions, or other factors are

Commented [A6]: We respectfully decline support for the development of a trap and haul program for listed steelhead as a priority for addressing drought challenges. We believe there are significant and powerful uncertainties around the ability to implement a scientifically credible pilot program for barging listed steelhead at this time. For example, earlier efforts to examine such a program have floundered on the sample sizes that would be required, and the lack of available fish to populate those samples. Bill authors should be aware of these limitations if choosing to proceed with this pilot project.

Commented [A7]: Please understand that it might take a DECADE or more to conduct a pilot program, assuming it is feasible at the outset.

Commented [A8]: We strongly support investing in precision water and fish management. Similar to the focus in Title 1, we recommend placing a higher priority on the design and implementation of tagging and monitoring programs that can assist in the implementation of “real time” operating criteria in lieu of calendar based criteria where feasible. Such a focus hopes a far higher degree of enhancing flexible water management operations than a number of the other current points of emphasis, including trap and haul, mass marking, etc. etc. which are likely to have no immediate or near term benefits.

experimentally altered and the behavior and survival of tagged juvenile salmonids are observed. Studies may also be conducted to aid in the understanding of Chinook salmon and steelhead abundance, distribution, and survival.

(2) SAMPLING.—The sampling—

(A) shall include recording water quality and tidal data;

(B) will be designed to aid in the understanding of salmonid abundance, distribution, and movements throughout the Bay Delta, including estimates of through Delta survival from Knights Landing or from Mossdale to Chipps Island; and

(C) will supplement, not supplant, ongoing acoustic tag and coded wire survival studies in the San Joaquin and Sacramento Rivers which the Assistant Administrator determines are crucial for trend monitoring.

SEC. 203. PROCESS FOR ENSURING SALMONID MANAGEMENT IS RESPONSIVE TO NEW SCIENCE.

(a) General directive. The reasonable and prudent alternative described in the salmonid biological opinion allows for and anticipates adjustments in operating criteria to reflect the best scientific and commercial data currently available, and authorizes efforts to test and evaluate improvements in operations that will meet applicable regulatory requirements and enable improvements in water supply reliability. The Commissioner and the Assistant Administrator are hereby directed and encouraged to utilize these authorities fully as described below.

(b) Annual reviews of certain operating criteria. No later than December 31, 2015, and at least annually thereafter,

1. The Commissioner, in consultation with and with the assistance of the Assistant Administrator shall commence annual efforts to examine and identify adjustments to the timing of pumping operations in initiation of Action IV.2.3 pertaining to negative OMR flows, subject to paragraph (5).
2. The Commissioner, in consultation with and with the assistance of the Assistant Administrator, shall examine and identify adjustments in the timing, triggers or other operational details relating to the implementation of pumping restrictions in Action IV.2.1 pertaining to the inflow to exports requirements, subject to paragraph (5).
3. Pursuant to the consultation and assessments carried out under paragraphs (1) and (2) of this subsection, the Assistant Administrator Commissioner make recommendations to the Assistant Administrator Commissioner on adjustments that, in the exercise of the adaptive management provisions of the 2009 biological opinion, can improve water supplies and are consistent with the requirements of applicable law and as further described in subsection (c).

Commented [A9]: We respectfully recommend against legislating permanent law governing how the CVP and the ESA should be implemented. Many of the specifics of the current biological opinions will change over time. Legislating permanent requirements governing specific operating criteria may impede the ability to make these changes and foster considerable confusions as to the prevailing statutory regime. We therefore recommend providing a time limitation to these provisions, enabling them to expire after the end of the drought or by a time certain.

Commented [A10]: Per the comment above, we recommend including in section b) "and until such time as Action IV 2 3 is superseded"

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- 1 4. The ~~Assistant Administrator and the~~ Commissioner shall implement those adjustments
2 for which the conditions under subsection (c) are met.
3
- 4 5. The Assistant Administrator and the Commissioner shall review and identify adjustments
5 to water supply restrictions in any successor biological opinion to the salmonid biological
6 opinion, applying the provisions of this section to those water supply restrictions where
7 there are references to Actions IV.2.1 and IV.2.3.
8
- 9 (c) Adjustments that shall be implemented. In ~~making-receiving~~ the recommendations under
10 subsection (b), the Assistant Administrator shall evaluate the effects of the recommended
11 adjustments on listed species and shall recommend to the Commissioner adjustments for
12 which:
13
 - 14 1. the net effect on listed species is ~~at worst~~ equivalent to those of the underlying criteria,
15 taking into account whatever actions or measures may be implemented in conjunction
16 with the adjustments to mitigate its effects; ~~and~~
17 2. the effects of the adjustment fall within the incidental take authorizations.
18 ~~2.~~
19
- 20 (d) Taking into account offsetting species survival benefits from other measures.
21
 - 22 1. When examining opportunities to ~~minimize or~~ offset the potential adverse effect of
23 adjustments to operating criteria ~~as described in (b) and (c),~~ the Commissioner and the
24 Assistant Administrator shall take into account the potential salmonid survival
25 improvements that are likely to result from other measures which, if implemented in
26 conjunction with the adjustments, would offset the adverse effects of the adjustments.
27 When considering offsetting ~~mitigating~~ measures, the Commissioner and the Assistant
28 Administrator shall ~~take into account~~ consider the type, timing and nature of the adverse
29 effects to specific species and ensure that the ~~mitigation~~ measures provide equivalent
30 overall benefits to the listed species in the aggregate serve as offsets to those adverse
31 effects.
32
 - 33 ~~1-2.~~ The offsetting measures could include actions implemented with the support of a
34 substantial contribution from water districts that would benefit from the adjustments.
35
- 36 (e) Framework for examining opportunities to minimize or offset the potential adverse effect of
37 adjustments to operating criteria.—Not later than December 31, 2015, and every five years
38 thereafter, the Assistant Administrator shall, in collaboration with the Director of the
39 California Department of Fish and Wildlife, based on the best scientific and commercial data
40 available and for each listed salmonid species, issue estimates of the increase in through-
41 Delta survival the Secretary expects to be achieved—
 - 42 (1) with export restrictions as specified by Action IV.2.3 as compared to limiting OMR flow
43 to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is
44 applicable, based on a given rate of San Joaquin River inflow to the Delta and holding

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other relevant factors constant;

(2) with San Joaquin River inflow to export restrictions specified within Action IV.2.1 as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, based on a given rate of San Joaquin River inflow to the Delta and holding other relevant factors constant;

(3) by a trap and barge program based on the experience of other systems to the extent they are comparable, and the ~~experience of other comparable systems and the~~ study described in section 202, as that information becomes available;

(4) through physical habitat restoration improvements;

(5) through predation control programs;

(6) through temporary barriers, the Cross Channel Gates, and other projects affecting flow in the Delta;

(7) by salvaging fish that may be entrained fish near~~at~~ the entrance to Clifton Court Forebay; if feasible; and

(8) by any other management measures that may provide equivalent or better benefits for listed species with improvements to water supplies.

(f) Survival estimates to be quantitative to the maximum extent feasible.

1) The Assistant Administrator shall make these estimates and determinations quantitatively to the maximum extent feasible, such as a range of percentage increases in through-Delta survival that could result from the management measures, and if the scientific information is lacking for quantitative estimates, shall do so on qualitative terms based upon the best available science.

2) If the Assistant Administrator provides qualitative estimates of the benefits to the species from one or more management measures, the Secretary shall, to the maximum extent feasible, rank the management measures described in paragraph (2) in terms of their most likely expected contribution to increased through-Delta survival to specific species relative to the other measures.

3) If at the time the Assistant Administrator conducts the analysis under subsection (b), the Secretary has not issued the estimates of increased through-Delta survival benefits from different management measures pursuant to subsection (e), the Secretary shall compare the benefits to the specific species from different management measures based on the best scientific and commercial data available at the time.

(g) Comparison of adverse consequences for alternative management measures of equal benefit to the salmon.—

Commented [A11]: "Comparable systems" should be identified, if used. There has been research in this, and survival down the San Joaquin is dismal compared to other systems, thus, may not be any comparable systems. Results of the trap and barge program should be compared to the situation without, and include survival and % straying.

Commented [A12]: Please note "if feasible" addition. The screening of the forebay was evaluated and rejected a decade ago on feasibility grounds. We recommend undertaking a pilot program to evaluate the feasibility.

(1) For the purposes of this subsection—

(A) The alternative management measure or combination of alternative management measures identified in paragraph (2) shall be known as the “equivalent alternative measure.”

(B) The existing measure or measures identified in subparagraphs (2)(A),(B),(C), or (D) shall be known as the “equivalent existing measure.”

(C) An “equivalent increase in through-Delta survival rates for listed salmonid species” shall mean an increase in through-Delta survival rates that is equivalent when considering the change in through-Delta survival rates for the listed salmonid species considered in the aggregate as a whole, and not necessarily the same change for each individual species, as long as the change in survival rates for all species remains consistent with the Endangered Species Act.

(2) As part of the reviews of operating criteria pursuant to subsection (b), the Assistant Administrator shall determine whether any alternative management measures or combination of alternative management measures listed in subsection (e)(3) through (8) would provide an increase in through-Delta survival rates for listed salmonid species that is equivalent to the increase in through-Delta survival rates for listed salmonid species from the following:

(A) with export restrictions as specified by Action IV.2.3, as compared to limiting OMR flow to a fixed rate of -5000 cubic feet per second within the time period Action IV.2.3 is applicable;

(B) with export restrictions as specified by Action IV.2.3, as compared to a modification of Action IV.2.3 that would provide additional water supplies, other than that described in subparagraph (A);

(C) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to the export restrictions in the April/May period imposed by the State Water Resources Control Board decision D-1641, or

(D) with San Joaquin River inflow to export restrictions specified within Action IV.2.1, as compared to a modification of Action IV.2.1 that would provide additional water supplies, other than that described in subparagraph (C).

(3) If the Assistant Administrator identifies an equivalent alternative measure pursuant to paragraph (2), the Assistant Administrator shall determine whether

(A) it is technically feasible and within federal jurisdiction to implement the equivalent alternative measure, and

(B) the adverse consequences of doing so are less than the adverse consequences of the equivalent existing measure, including a concise evaluation of the adverse consequences to other affected interests.

(4) If the Assistant Administrator makes the findings in subparagraph (3)(A) and (B), the Assistant Administrator and the Commissioner shall adjust the operating criteria in the

Commented [A13]: Please see above comments that “offsets” must be species specific and effects specific. NOAA recommends clarifying this specificity here and throughout to avoid confusion and litigation as to what constitutes “off-setting mitigation”.

salmonid biological opinion pursuant to this subsection to implement the equivalent alternative measure in place of the equivalent existing measure in order to increase water supplies to the greatest extent possible while maintaining a net combined effect of equivalent through-Delta survival rates for the listed salmonid species.

- (h) Tracking incidental take levels adverse effects beyond the range of effects accounted for in the biological opinion and coordinated operation with smelt biological opinion.

- (1) Among the adjustments to the operational criteria considered through the adaptive management process under this section, the Assistant Administrator and the Commissioner shall

A) Evaluate the effect on through-Delta survival rates for listed salmonid species and water supply benefits of imposing part or all of the provisions of Actions IV.2.1 and IV.2.3 only in instances where necessary to do so in order to avoid exceeding the incidental take level for listed salmonid species range of effects from project operations accounted for in the biological opinion over the remainder of the water year; and

B) Consider requiring that before some or all of the provisions of Actions IV.2.1. or IV.2.3 are imposed in any specific instance, the Assistant Administrator show that the implementation of these provisions in that specific instance is necessary to avoid adverse effects to exceeding the incidental take level for listed salmonid species from project operations over the remainder of the water year.

- (2) Through tracking incidental take levels or some other mechanism, the Assistant Administrator, the Director and the Commissioner, in coordination with State officials as appropriate, shall consider establishing operational criteria to coordinate management of OMR flows under the smelt and salmonid biological opinions, in order to take advantage of opportunities to provide additional water supplies from the coordinated implementation of the biological opinions.

SEC. 204. PILOT PROGRAM TO PROTECT NATIVE ANADROMOUS FISH IN THE STANISLAUS RIVER.

(a) Establishment of Non-native Predator Fish Removal Program. The Assistant Administrator, in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, shall develop and conduct a pilot non-native predator fish removal program to remove non-native striped bass, smallmouth bass, largemouth bass, black bass, and other non-native predator fishes in and around the Bay Delta, including the Stanislaus River, contingent upon funding. The pilot program shall--

- (1) be scientifically based;

(2) include methods to quantify the number and size of predator fishes removed each year, the impact of such removal on the overall abundance of predator fishes, and the impact of such removal on the populations of juvenile anadromous fish found in the Stanislaus River and elsewhere by, among other things, evaluating the number of juvenile anadromous fish that migrate past the rotary screw trap located at Caswell;

Commented [A14]: We respectfully oppose the use of the incidental take authorizations as the management objective for establishing or adjusting individual operating criteria, as is proposed here. The incidental take authorizations do not serve this purpose, and are expressed as much "coarser" levels of effects than are the individual operating criteria. We suggest "adverse effects" as a better standard.

Commented [A15]: The predator removal program should be conducted upstream of Caswell. That specificity should be stated somewhere. Maybe insert a new #2 to say, "on the Stanislaus River, be conducted upstream of the rotary screw trap at Caswell."

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(3) among other methods, use wire fyke trapping, portable resistance board weirs, and boat electrofishing, which are among the most effective predator collection techniques that minimize effects to native anadromous fish;

(4) be developed, including the application for all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)), for the performance of the pilot program, not later than 6 months after the date of the enactment of this Act;

(5) be implemented on the first business day of the calendar year following the issuance of all necessary scientific research, ~~and~~ species enhancement permits, and funding needed to begin the pilot program; and

(6) be implemented for a period of seven consecutive calendar years.

(b) Management. The Assistant Administrator is authorized and encouraged to enter into agreements with interested local water districts to jointly develop, implement and evaluate this pilot program. Such parties shall work collaboratively to ensure the performance of the pilot program, and shall discuss and agree upon, among other things, changes in the structure, management, personnel, techniques, strategy, data collection, reporting and conduct of the pilot program.

(c) Conduct.—

(1) IN GENERAL.— By agreement between the Assistant Administrator and the participating districts, the pilot program may be conducted by their own personnel, qualified private contractors hired by the districts, personnel of, on loan to, or otherwise assigned to NOAA Fisheries, or a combination thereof.

(2) PARTICIPATION BY NOAA FISHERIES.—In the event the districts elect to conduct the program using their own personnel or qualified private contractors hired by them, the Commissioner has the option to assign an employee of, on loan to, or otherwise assigned to NOAA Fisheries, to be present for all activities performed in the field. Such presence shall ensure compliance with the agreed upon elements specified in subsection (b). The districts shall pay 100 percent of the cost of such participation as specified in subsection (d).

(3) TIMING OF ELECTION.—The districts shall notify the Assistant Administrator of their election on or before October 15 of each calendar year of the pilot program, which election shall apply to the work performed in the subsequent calendar year.

(d) Funding.—

(1) ANNUAL FUNDING.—The Commissioner, the Assistant Administrator, and the participating districts shall develop a budget and funding plan for the pilot project that will allocate costs appropriately amongst the participating entities. On or before December 1 of each year of the pilot program, the Commissioner shall submit to the districts an estimate of the cost to be incurred by the Bureau of Reclamation in the following calendar year, if any, including the cost of any data collection and posting under subsection (e). If an amount equal to the estimate is not provided to ~~the fund directed by~~ the Assistant Administrator by the districts on or before December 31 of each year, (a) NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled, and (b) the districts

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shall be prohibited from conducting any aspect of the pilot program, until full payment is made by the districts.

(2) ACCOUNTING.—On or before September 1 of each calendar year, the Assistant Administrator shall provide an accounting of the prior calendar year's expenses to the participating entities. If the estimate paid by the districts was less than the actual costs incurred by NOAA Fisheries, the districts shall have until September 30 of that calendar year to pay the difference to the fund identified by the Assistant Administrator in subsection (d)(1). or NOAA Fisheries shall have no obligation to conduct the pilot program activities otherwise scheduled. If the estimate paid by the districts was greater than the actual costs incurred by NOAA Fisheries, then a credit shall be provided to the districts, which shall be deducted from the estimate payment the districts must make for the work performed by NOAA Fisheries, if any, in the next calendar year.

(e) Reporting and Evaluation.—

(1) IN GENERAL.—On or before the 15th day of each month, the Assistant Administrator shall post on the website of NOAA Fisheries a tabular summary of the raw data collected in the prior month.

(2) REPORT.—On or before June 30 of the calendar year following the completion of the program, the Assistant Administrator and districts shall jointly submit a report for publication peer reviewed report that—

(A) discusses the findings and conclusions of the pilot program;

(B) synthesizes the data collected under paragraph (1); and

(C) makes recommendations for further study and action.

(f) Permits Process.—

(1) Not later than one year after filing of an application by the Assistant Administrator and the districts, the Secretary of the Interior, the Secretary of Commerce, or both, as appropriate, shall issue all necessary scientific research and species enhancement permits under section 10(a)(1) of the Endangered Species Act (16 U.S.C. 153(9)(a)(1)), for the performance of the pilot program.

(2) All permits issued shall be in the name of NOAA Fisheries and the participating districts.

(3) Districts may delegate the authority to administer the permit authority to any qualified private contractor retained in accordance with subsection (c).

(g) Emergency Environmental Reviews.—To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with Section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this section.

(h) Definitions.—For the purposes of this section:

Commented [A16]: Publication timelines vary, should not set a deadline for peer reviewed report, but rather, submission of the report for peer review.

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(1) COMMISSIONER.—The term 'Commissioner' means the Commissioner of the Bureau of Reclamation.

(2) DISTRICTS.—The term 'districts' means the Oakdale Irrigation District and the South San Joaquin Irrigation District.

(3) PILOT PROGRAM.—The term 'program' means the pilot non-native predator removal program established under this section.

(i) Sunset.—The authorities provided under this section shall expire seven years after the implementation of the pilot program.

SEC. 205. CALFED INVASIVE SPECIES PILOT PROJECTS
IN THE SACRAMENTO-SAN JOAQUIN BAY DELTA AND
ITS TRIBUTARIES.

(a) FINDINGS.—Congress finds that—

(1) The Sacramento-San Joaquin Bay Delta and its Tributaries—

(A) is one of the largest and most diverse estuaries in the United States,

(B) is a natural treasure and a vital link in California's water system, and

(C) has native biodiversity important to the ecological and economic systems of California, including water deliveries to agriculture, municipalities and to the environment and fisheries industries, and

(D) has river tributaries important for rearing of salmon and steelhead smolts which experience a high level of predation from non-native species.

(2) Past, present and future introductions of invasive species are and will be a major factor in the decline of native pelagic and anadromous endangered or threatened species in the Sacramento-San Joaquin Bay Delta and its tributaries.

(3) More than 250 nonnative aquatic and plant species have been introduced into the Delta and its tributaries; of these, at least 185 species have become established and have altered the Sacramento-San Joaquin Bay Delta watershed's ecosystem.

(4) The Bay Delta Conservation Plan, the Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of the Central Valley Steelhead, the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, and the multiple 5 year reviews of those plans all highlight that introduced nonnative invasive species are a significant factor in the decline of native fish species. These nonnative species, which include invasive aquatic vegetation, predators, and competitors, directly or indirectly cause biological stress for pelagic and anadromous endangered or threatened fish species in the Sacramento-San Joaquin Bay-Delta and its tributaries.

(5) If threats by nonnative species to native fish species are not addressed, there is a high probability that native species of the Sacramento-San Joaquin Bay-Delta watershed's pelagic and anadromous community will go extinct.

Commented [A17]: We think this is speculation. Predation is an important stressor, but to say that nonnative species will cause pelagic and anadromous communities to go extinct is a pretty bold statement.

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(6) The CALFED legislation (Public Law 108-361) authorized a program to prevent, control, and eradicate invasive species, but it has not been implemented to date.

(7) A focused pilot program needs to be conducted within the Delta and river tributaries to reduce threats to native listed species by nonnative species. Reducing nonnative stressors on native listed species will contribute to both native listed species recovery and lowering the impact on downstream water users as those native listed species recover.

(b) PILOT PROJECTS TO IMPLEMENT CALFED INVASIVE SPECIES PROGRAM.

(1) Not later than January 1, 2016, the Secretary of the Interior, in collaboration with the Secretary of Commerce and the Director of the California Department of Fish and Wildlife, shall begin pilot projects to implement the invasive species program, including prevention, control and eradication authorized pursuant to Section 103(d)(6)(A)(iv) of Public Law 108-361. The pilot projects shall:

(A) seek to reduce invasive aquatic vegetation, predators, and other competitors which are major factors in the decline of native listed pelagic and anadromous species that occupy the Sacramento and San Joaquin Rivers and their tributaries and the Sacramento-San Joaquin Bay-Delta; and

(B) address how to remove, reduce, or control the effects of species including: Asiatic clams, silversides, gobies, Brazilian water weed, largemouth bass, smallmouth bass, striped bass, crappie, bluegill, white and channel catfish, and brown bullheads.

(2) The Secretary of the Interior's efforts shall consist of the following phases:

(A) Phase 1. The Secretary of the Interior shall convene a panel of experts, including experts recommended by the State of California, to:

(i) Identify the non-native species having the greatest impact on the viability of native pelagic and anadromous native listed species; and

(ii) Identify the non-native species for which actions to reduce or control the population is determined to be possible; and

(iii) Design a study to reduce the non-native species identified in clauses (i) and (ii) and prepare a cost estimate to implement this study.

(B) Phase 2. The Secretary of the Interior shall test the general viability of nonnative reduction methods, including either direct predator removal or alteration of channel conditions, or some combination thereof, through pilot projects at multiple sites in addition to the projects on the Stanislaus River pursuant to Section 204, including known hotspots of predator aggregation or activity, such as:

(i) Clifton Court Forebay,

(ii) Central Valley Project intakes,

(iii) Head of Old River,

(iv) Georgiana Slough,

(v) Old and Middle Rivers,

(vi) Franks Tract,

Commented [A18]: Please note that there was already a predation workshop, and consider directing the review and implementation of its recommendations rather than duplicate another workshop.

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(vii) Paintersville Bridge,

(viii) individual river tributaries important for wild populations of
anadromous species listed as threatened or endangered under the Endangered
Species Act of 1973,

(ix) Human-made submerged structures, and

(x) Salvage release sites.

(C) Phase 3. If it is feasible to do so, the Secretary of the Interior shall implement
nonnative reduction methods at a larger number of sites, incorporating information
learned during the first and second phase.

(3) The Secretary of the Interior shall collect data associated with the implementation of
the projects above, and shall specifically collect data on the impact on

(A) pelagic and anadromous species listed as threatened or endangered under the
Endangered Species Act of 1973,

(B) water quality, and

(C) water supply.

(4) After assessing the data described in subparagraph (2), the Secretary of the Interior, in
collaboration with the Secretary of Commerce and the Director of the California Department
of Fish and Wildlife, shall, if appropriate, annually recommend revisions to the reasonable
and prudent alternatives contained in the salmonid biological opinion and the biological
opinion issued by the United States Fish and Wildlife Service on December 15, 2008, or
other administrative federal requirements governing the operation of the Central Valley
Project and the State Water Project, that are likely to produce additional fishery, water
quality, and water supply benefits.

(c) IMPLEMENTATION. The Secretary of the Interior shall implement the CALFED program
described in subpart (b) for at least a period of seven consecutive years beginning on the date of
implementation.

(d) REPORTING REQUIREMENTS. The Secretary of the Interior shall provide reports to the
Senate Committee on Environment and Public Works and the House Committee on Natural
Resources on the following:

(1) No later than January 1, 2016, a description of the projects described in subpart (b),
including the application for all necessary scientific research and species enhancement
permits under section 10(a) (1) of the Endangered Species Act of 1973 (16 U.S.C.
1539(a)(1)), and for the performance of the CALFED invasive species Program.

(2) Upon the completion of Phase 1 as described in subsection (b)(1)(A), a report
describing its implementation and cost effectiveness.

(3) Two years after the project begins, a report describing the progress of the eradication
of the nonnative species in the Sacramento-San Joaquin Bay-Delta and its tributaries and
how such efforts have helped the Recovery Plans for endangered and threatened

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Anadromous and Pelagic Species in the San Joaquin -Sacramento Bay-Delta watershed and the associated cost effectiveness of each control measure.

(4) After the pilot projects are complete, a report describing the results of the program, including recommendations on whether the program should be continued, how the program may be taken to full scale in the most cost effective manner, and how a mitigation program for the Central Valley Project allowable under section 10(a)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1539(a)(1)) could be implemented.

(e) EMERGENCY ENVIRONMENTAL REVIEWS. To expedite this environmentally beneficial program for the conservation of threatened and endangered species, the Secretary of the Interior shall consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations) to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 for this program.

SEC. 206. MARK FISHERY AND HARVEST MANAGEMENT.

(a) In General.—To minimize the impact of harvest and project operations on salmonids, contribute to recovery of stocks of endangered or threatened species, improve management of fish stocks of both hatchery and natural origins, and to minimize risk of a natural origin fall Chinook listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), the Assistant Administrator shall—

(1) In partnership with the Director of the California Department of Fish and Wildlife and persons responsible for funding Central Valley hatcheries, convene an independent science panel within 60 days of enactment of this Act to thoroughly review the scientific benefits, risks, and costs associated with marking and tagging methods which would allow for identification of hatchery origin fall Chinook. The Assistant Administrator shall ensure that the independent science panel—

(A) Includes an appropriate number of scientific experts as determined and appointed by the Assistant Administrator, and an equal number of scientific experts selected by entities responsible for funding California salmon mitigation hatcheries;

(B) Considers and gives equal weight to both inland and ocean monitoring and management needs, including harvest.

(C) Completes the review by December 31, 2015.

(2) Provide a report to the House Committee on Natural Resources and the Senate Committee on Commerce, Science, and Transportation, within 60 days of the conclusion of the review under Paragraph (1), that summarizes key findings and provides scientifically supported recommendations on the best marking and tagging methods that would allow for identification of hatchery origin fall Chinook.

(3) Assess and implement harvest management strategies by October 1, 2018 to provide better protection for sensitive Chinook stocks while still allowing for harvest of hatchery fall Chinook.

(A) In carrying out the assessment under this Paragraph, any alternative harvest

Commented [A19]: Please note that NOAA Fisheries and others convened the California Hatchery Scientific Review Group, which released a comprehensive set of recommendations on hatchery reforms, including expanded marking and tagging of hatchery releases. Respectfully recommend deletion of this section as redundant and not an important priority for addressing the 2015 drought. We remain totally open to exploring more aggressive implementation of the Cal. HSRG's recommendations with legislators and other interested parties.

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strategies assessed shall include stock-specific quotas, daily landing limits, terminal fisheries, and mark-selective fisheries, all of which methods are standard practice for Chinook harvest management in Oregon and Washington.

SEC. 207. NEW ACTIONS TO BENEFIT CENTRAL VALLEY SALMONIDS.

Not later than March 1, 2016, under similar terms and conditions as successful United States Fish and Wildlife Service programs on Clear Creek and Battle Creek, the Director, in collaboration with the Director of the California Department of Fish and Wildlife, the Commissioner of the Bureau of Reclamation, or both, shall issue necessary permits and otherwise facilitate the deployment of temporary in-river structures—

(1) to protect and grow natural origin spring Chinook populations by blocking access to hatchery origin fall Chinook; and

(2) to prevent hatchery origin Chinook salmon and steelhead from reaching spawning grounds where the species will compete for spawning with natural origin fish listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

TITLE III—OPERATIONAL FLEXIBILITY AND DROUGHT RELIEF

SEC. 301. FINDINGS.

Congress finds that—

(1) Based on the congressional findings in Sec. 2 of this Act, it is appropriate and necessary for federal agencies to exercise the maximum amount of flexibility provided to them under the applicable laws and regulations to maximize delivery of water supplies while providing the same or better levels of protection for species.

SEC. 302. DEFINITIONS.

In this title:

(1) CENTRAL VALLEY PROJECT.—The term “Central Valley Project” has the meaning given the term in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4707).

(2) KLAMATH PROJECT.—The term “Klamath Project” means the Bureau of Reclamation project in the States of California and Oregon, as authorized under the Act of June 17, 1902 (32 Stat. 388, chapter 1093).

(3) RECLAMATION PROJECT.—The term “Reclamation Project” means a project constructed pursuant to the authorities of the reclamation laws and whose facilities are wholly or partially located in the State.

Commented [A20]: DOI still not clear on the intent of this section. Recommend offline discussion with bill author.

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(4) SECRETARIES.—The term “Secretaries” means—

(A) the Administrator of the Environmental Protection Agency;

(B) the Secretary of Agriculture;

(C) the Secretary of Commerce; and

(D) the Secretary of the Interior.

(5) STATE WATER PROJECT.—The term “State Water Project” means the water project described by California Water Code section 11550 et seq., and operated by the California Department of Water Resources.

SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF
DROUGHT.

(a) Water Supplies.—

(1) IN GENERAL.—In response to a declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, the Secretaries shall provide the maximum quantity of water supplies practicable to Central Valley Project agricultural, municipal and industrial, and refuge service and repayment contractors, State Water Project contractors, and any other tribe, locality or municipality in the State, by approving, consistent with applicable laws (including regulations), projects and operations to provide additional water supplies as quickly as practicable based on available information to address the emergency conditions.

(2) APPLICATION.—Paragraph (1) applies to projects or operations involving the Klamath Project if the projects or operations would benefit Federal water contractors in the State.

(b) Administration.—In carrying out subsection (a), the Secretaries shall, consistent with applicable laws (including regulations)—

(1) issue all necessary permit decisions under the authority of the Secretaries not later than 30 days after the date on which the Secretaries receive a completed application from the State to place and use temporary barriers or operable gates in Delta channels to improve water quantity and quality for the State Water Project and the Central Valley Project south of Delta water contractors and other water users, on the condition that the barriers or operable gates—

(A) provide benefits for species protection and in-Delta water user water quality; and

(B) are designed so that formal consultations under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536) are not necessary;

(2) require the Director of the United States Fish and Wildlife Service and the Commissioner of Reclamation—

(A) to complete, not later than 30 days after the date on which the Director or the Commissioner receives a complete written request for water transfer associated with voluntarily fallowing nonpermanent crops in the State, all requirements under the

Commented [A21]: We recommend recasting Sec. 303 in the context of the development of a 2015 Drought Operations Plan as per earlier Administration recommendations. See text we have previously submitted at the end of this document “ALTERNATIVE SEC. 303”

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National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) necessary to make final permit decisions on the request; and

(B) to grant any water transfer request described in subparagraph (A) to maximize the quantity of water supplies available for nonhabitat uses, on the condition that the following and associated water transfer are in compliance with applicable Federal laws (including regulations);

(3) adopt a 1:1 inflow to export ratio for the increment of increased flow of the San Joaquin River, as measured as a 3-day running average at Vernalis during the period beginning on April 1, and ending on May 31, resulting from voluntary transfers and exchanges of water supplies, on the condition that a proposed transfer or exchange under this paragraph may only proceed if the Secretary of the Interior determines that the environmental effects of the proposed transfer or exchange are consistent with effects permissible under applicable law (including regulations), and Delta conditions are suitable to allow movement of the transfer water through the Delta consistent with Reclamation's permitted rights; and

(4) Provide additional priority for eligible WaterSMART projects that address drought conditions including projects that—

(A) provide emergency drinking and municipal water supplies to localities in a quantity necessary to meet minimum public health and safety needs;

(B) prevent the loss of permanent crops;

(C) minimize economic losses resulting from drought conditions; or

(D) provide innovative water conservation tools and technology for agriculture and urban water use that can have immediate water supply benefits.

(c) Accelerated Project Decision and Elevation.—

(1) IN GENERAL.— On request by the Governor of the State, the heads of Federal agencies shall use the expedited procedures under this subsection to make final decisions relating to a Federal project or operation if the project's or operation's purpose is to provide relief for emergency drought conditions pursuant to subsections (a) and (b).

(2) REQUEST FOR RESOLUTION.—

(A) IN GENERAL.—On request by the Governor of the State, the head of a Federal agency referenced in paragraph (1), or the head of another Federal agency responsible for carrying out a review of a project, as applicable, the Secretary of the Interior shall convene a final project decision meeting with the heads of all relevant Federal agencies to decide whether to approve a project to provide relief for emergency drought conditions.

(B) MEETING.—The Secretary of the Interior shall convene a meeting requested under subparagraph (A) not later than 7 days after the date on which the meeting request is received.

(3) NOTIFICATION.—On receipt of a request for a meeting under paragraph (2), the

Commented [A22]: Please note that as a technical matter the 1:1 ratio under Action IV.2.1 pertains to a critically dry year, while other ratios are applicable to differing water year types. We note the directive to examine the broader application of the 1:1 ratio and implement it if consistent with permissible effects.

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Secretary of the Interior shall notify the heads of all relevant Federal agencies of the request, including information on the project to be reviewed and the date of the meeting.

(4) DECISION.—Not later than 10 days after the date on which a meeting is requested under paragraph (2), the head of the relevant Federal agency shall issue a final decision on the project.

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Commented [A23]: Please note that this may not be consistent with subsection (e)(2), below, which includes the ESA.

(5) MEETING CONVENED BY SECRETARY.—The Secretary of the Interior may convene a final project decision meeting under this subsection at any time, at the discretion of the Secretary, regardless of whether a meeting is requested under paragraph (2).

(d) Application.—To the extent that a Federal agency, other than the agencies headed by the Secretaries, has a role in approving projects described in subsections (a) and (b), this section shall apply to those Federal agencies.

(e) Limitation.—Nothing in this section authorizes the heads of applicable Federal agencies to approve projects—

(1) that would otherwise require congressional authorization; or

(2) without following procedures required by applicable law.

SEC. 304. OPERATION OF CROSS-CHANNEL GATES.

Commented [A24]: We are unclear if the operation described is physically feasible for DCC operation

(a) In General.—The Secretary of Commerce and the Secretary of the Interior shall jointly—

(1) authorize and implement activities to ensure that the Delta Cross Channel Gates remain open to the maximum extent practicable using findings from the United States Geological Survey on diurnal behavior of juvenile salmonids, timed to maximize the peak flood tide period and provide water supply and water quality benefits for the duration of the drought emergency declaration of the State, consistent with operational criteria and monitoring criteria developed pursuant to the Order Approving a Temporary Urgency Change in License and Permit Terms in Response to Drought Conditions of the California State Water Resources Control Board, effective January 31, 2014 (or a successor order) and other authorizations associated with it;

Commented [A25]: NOAA provided specific operational criteria applicable to the DCC; hence the additional references as proposed.

(2) with respect to the operation of the Delta Cross Channel Gates described in paragraph (1), collect data on the impact of that operation on—

(A) species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

(B) water quality; and

(C) water supply;

(3) consistent with knowledge gained from activities carried out during 2014, collaborate with the California Department of Water Resources to install a deflection barrier at Georgiana Slough in coordination with Delta Cross Channel Gate diurnal operations to protect migrating salmonids;

Commented [A26]: We recommend verifying if this action is feasible. We are happy to work with bill authors offline to answer this question.

(4) evaluate the combined salmonid survival in light of activities carried out pursuant to paragraphs (1) through (3) in deciding how to operate the Delta Cross Channel gates to

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enhance salmonid survival and water supply benefits; and

(5) not later than May 15, 2015, submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Natural Resources of the House of Representatives a written report on the extent to which the gates are able to remain open.

(b) Recommendations.—After assessing the information collected under subsection (a), the Secretary [of the Interior] shall recommend revisions to the operation of the Delta Cross-Channel Gates, to the Central Valley Project, and to the State Water Project, including, if appropriate, any reasonable and prudent alternatives contained in the biological opinion issued by the National Marine Fisheries Service on June 4, 2009, that are likely to produce fishery, water quality, and water supply benefits.

Commented [A27]: Please clarify that this might also require changes to D-1641 to implement

SEC. 305. FLEXIBILITY FOR EXPORT/INFLOW RATIO.

In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such a drought declaration remains in effect, ~~consistent with the Central Valley Project and State Water Project Drought Operations Plan and Operational Forecast~~, the Commissioner of the Bureau of Reclamation shall continue to vary the averaging period of the Delta Export/Inflow ratio pursuant to the California State Water Resources Control Board decision D1641, approved in the March Temporary Urgency Change Order—

Commented [A28]: Rather than Gov, may want to consider tying the section to the designation of the end of the critical drought through reference to the relevant federal drought monitoring authority -- and not to a proclamation by the Governor - in order to tie it to a factual circumstance and not to a policy decision by a state official.

(1) to operate to a 35 percent Export/Inflow ratio with a 3 day averaging period on the rising limb of a Delta inflow hydrograph; and

(2) to operate to a 14 day averaging period on the falling limb of the Delta inflow hydrograph.

SEC. 306. EMERGENCY ENVIRONMENTAL REVIEWS.

To minimize the time spent carrying out environmental reviews and to deliver water quickly that is needed to address emergency drought conditions in the State during the duration of an emergency drought declaration, the head of each applicable Federal agency shall, in carrying out this Act, consult with the Council on Environmental Quality in accordance with section 1506.11 of title 40, Code of Federal Regulations (including successor regulations), to develop alternative arrangements to comply with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) during the emergency.

SEC. 307. PRIORITIZING STATE REVOLVING FUNDS DURING DROUGHTS.

(a) In General.—This section shall apply for each of the fiscal years during which an emergency drought declaration of the State is in effect.

(b) The Administrator of the Environmental Protection Agency, in implementing the processes and programs under the State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), shall, for those projects that are eligible to receive assistance under section 603 of the Federal Water Pollution Control Act (33 U.S.C. 1383) or section 1452(a)(2) of the

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Safe Drinking Water Act (42 U.S.C. 300j–12(a)(2)),

(1) issue a determination of waivers within 30 days of the conclusion of the informal public comment period pursuant to section 436(c) of title IV of division G of Public Law 113–76; and

(2) authorize, at the request of the State, 40-year financing for assistance under section 603(d)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)(2)) or section 1452(f)(2) of the Safe Drinking Water Act (42 U.S.C. 300j–12(f)(2)).

(c) Effect of Section.—Nothing in this section authorizes the Administrator of the Environmental Protection Agency to modify any funding allocation, funding criteria, or other requirement relating to State water pollution control revolving funds established under title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) and the State drinking water treatment revolving loan funds established under section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) for any other State.

SEC. 308. INCREASED FLEXIBILITY FOR REGULAR PROJECT OPERATIONS.

The Secretaries shall, consistent with applicable laws (including regulations)—

(1) to the maximum extent practicable, based on the availability of water and without causing land subsidence or violating water quality standards—

(A) help meet the contract water supply needs of Central Valley Project refuges through the improvement or installation of water conservation measures, water conveyance facilities, and wells to use groundwater resources, on the condition that those activities may only be accomplished by using funding made available under the Water Assistance Program or the WaterSMART program of the Department of the Interior; and

(B) make available to Central Valley Project contractors a quantity of Central Valley Project surface water obtained from the activities carried out under subparagraph (A);

(2) contingent upon funding, in coordination with the Secretary of Agriculture, enter into an agreement with the National Academy of Sciences to conduct a comprehensive study, to be completed not later than 1 year after the date of enactment of this Act, on the effectiveness and environmental impacts of saltcedar biological control efforts on increasing water supplies and improving riparian habitats of the Colorado River and its principal tributaries, in the State and elsewhere;

(3) in coordination with the California Department of Water Resources and the California Department of Fish and Wildlife, implement offsite upstream projects in the Delta and upstream Sacramento River and San Joaquin basins that offset the effects on species listed as threatened or endangered under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) due to activities carried out pursuant this Act, [as determined by the Secretaries];

(4) manage reverse flow in the Old and Middle Rivers as prescribed by the biological opinions issued by the United States Fish and Wildlife Service on December 15, 2008, for Delta smelt and by the National Marine Fisheries Service on June 4, 2009, for salmonids, or

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any successor biological opinions, to minimize water supply reductions for the Central Valley Project and the State Project, and issue guidance no later than December 31, 2015 directing their employees to take all steps necessary to manage flow in accordance with this paragraph;

(5) as soon as practicable after the date of enactment of this Act and pursuant to existing authority available to the Secretary of the Interior, participate in, issue grants, or otherwise provide funding for pilot projects to increase water in reservoirs in regional river basins experiencing extreme, exceptional, or sustained drought that have a direct impact on the water supply of the State, including the Colorado River Basin, on the condition that any participation, grant, or funding by the Secretary of the Interior with respect to the Upper Division shall be with or to the respective State; and

(6) use all available scientific tools to identify any changes to real-time operations of the Bureau of Reclamation, State, and local water projects that could result in the availability of additional water supplies.

SEC. 309. TEMPORARY OPERATIONAL FLEXIBILITY FOR FIRST FEW STORMS OF 2014-2015 WATER YEAR.

(a) Findings:

- (1) During the ~~2013~~-2014 water year, operations of the Central Valley Project and the State Water Project, the incidental take of adult Delta smelt was zero; of juvenile Delta smelt, 78 (7.7% of the incidental take limit); of winter run chinook, 339 (1.4% of the incidental take limit); ~~of spring run chinook, zero; and of steelhead, 261 (8.7% of the incidental take limit).~~
- (2) The Central Valley Project and State Water Project exceeded a Old and Middle River flow combined pumping capacity of -5,000 cubic feet per second over a 14-day average for brief periods after three storm events in February and March 2014, as a result of increased pumping, but did not cause substantially increased take of smelt or salmon.
- (3) Hydrological conditions in dry years, such as the ~~2013~~-2014 water year, have not triggered water pumping restrictions pursuant to the 2008 smelt biological opinion.
- (4) The Secretaries should be allowed more flexibility to increase pumping levels without causing significant risk to the listed species or weakening other environmental protections.
- (5) Given California's severe drought conditions, significant groundwater withdrawals for irrigation due to lack of surface water supplies, and the depletion of water supplies in reservoirs, it is imperative that the Secretaries exercise the flexibility provided herein to capture the maximum amount of storm flows when and if they occur in the ~~2014~~-2015 water year, and provide for the diversion of those supplies to the Central Valley Project and State Water Project so that farms, businesses, and homes in drought-stricken areas will have an opportunity to bolster their meager supplies when water is available.

(b) In general. Consistent with avoiding additional significant adverse effects upon take of listed fish that exceed the range of effects accounted for in the biological opinion beyond those currently authorized under the ESA, likely to result in exceeding the incidental take level in the biological opinions and other environmental protections under subsection (c), the Secretaries

Commented [A29]: We have not at the time of these comments been able to verify whether these findings are accurate and note the use of surrogates to estimate salvage and loss of listed spring-run at the pumps. We reserve the opportunity to provide additional data and modifications to the language to accurately describe the effects of 2014 operations as those data are analyzed and refined.

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shall authorize the Central Valley Project and the State Water Project, combined, to operate at levels that result in Old and Middle River flows at up to -7500 cubic feet per second (based on USGS gages on Old and Middle rivers) daily average for up to 21-~~by~~ cumulative days after October 1, 2014, as described in subsection (c).

(c) Days of temporary operational flexibility. The temporary operational flexibility described in subsection (b) shall be authorized on days that the California Department of Water Resources determines the daily average river flow of the Sacramento River is at, or above, 17,000 cubic feet per second as measured at the Sacramento River at Freeport gauge maintained by the United States Geologic Survey.

(d) Compliance with ESA incidental take authorizations. In carrying out this section, the Secretaries may continue to impose any requirements under the biological opinions during any period of temporary operational flexibility as they if they determine a may be necessary to avoid undue additional adverse effects over and above those authorized under the ESA, that otherwise project operations over the remainder of the water year would exceed the incidental take authorizations in the biological opinions.

(e) Other environmental protections.

- (1) The Secretaries' actions under this section shall be consistent with applicable regulatory requirements under state law, including State Water Resources Control Board Decision 1641, as it may be implemented in any given year;
- (2) During the first flush of sediment out the Delta during the 2014-2015 water year, OMR flow may be managed at rates less negative than -5000 cubic feet per second for a minimum duration to avoid movement of adult delta smelt (*Hypomesus transpacificus*) to areas in the southern Delta that would be likely to increase entrainment at Central Valley Project and State Water Project pumping plants;
- (3) This section shall not have any effect on the applicable requirements of the salmonid biological opinion from April 1 to May 31, unless the Secretary of Commerce finds that some or all of such applicable requirements may be adjusted relaxed during this time period to provide emergency water supply relief without resulting in additional adverse effects beyond those authorized under the ESA, exceeding the incidental take level;
- (4) During operations under this section, the Commissioner of Reclamation, in coordination with the Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, shall undertake a monitoring program and other data gathering to insure take limits levels are not exceeded, and to identify potential negative impacts and actions necessary to mitigate any impacts of the temporary operational flexibility to species listed as threatened or endangered under the Endangered Species Act, 16 U.S.C. 1531-1544; and
- (5) The Commissioner is authorized to take any action, including the transfer of appropriated funds between accounts that, in the Commissioner's judgment, are necessary to mitigate the impacts of such operations as long as any such mitigation is consistent with the requirements off this section.

(f) Technical adjustments to target period. If, before temporary operational flexibility has been implemented on 21 cumulative days, the Secretaries operate the Central Valley Project and the State Water Project combined at levels that result in Old and Middle River flows less negative

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Commented [A30]: Please note the change in language to "adverse effects beyond those currently authorized under the ESA" and "up to" 21 cumulative days. These changes are important to maintain Agency operational flexibility and avoid potential litigation.

Commented [A31]: Please note that first flush flows over 14,000 cfs at Wilkins Slough have been observed to trigger emigration of winter-run, so that the timing of increased exports with more negative OMR may coincide with higher emigration of and effects to winter-run. The agencies are actively evaluating the ability to implement adjustments to negative OMR criteria to enhance early spring water deliveries thru the deployment of real time monitoring capabilities, and will implement such adjustments thru the 2015 Drought Operations Plan.

Commented [A32]: Please note the recommended modifications to the operative standard: the incidental take authorizations do not function as biological objectives for specific operating criteria and were not designed to do so.

Commented [A33]: The incidental take limits are not meant to operate to.

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than -7500 cubic feet per second during days of temporary operational flexibility as defined in subsection (c), the duration of such operation shall not be counted toward the 21 cumulative days specified in subsection (b).

(g) Emergency consultation; effect on running averages.

1) If necessary to implement the provisions of this section, the Commissioner shall use the emergency consultation procedures under the Endangered Species Act and its implementing regulation at 50 CFR 402.05 to temporarily adjust the operating criteria under the biological opinions, solely for the 21 days of temporary operational flexibility—

A) no more than necessary to achieve the purposes of this section consistent with the environmental protections in subsections (d) and (e); and

B) including, as appropriate, adjustments to ensure that the actual flow rates during the periods of temporary operational flexibility do not count toward the 5-day and 14-day running averages of tidally filtered daily Old and Middle River flow requirements under the biological opinions.

2) Following the conclusion of the 21 days of temporary operational flexibility, the Commissioner shall not ~~need to~~ reinitiate consultation on these adjusted operations on the biological opinions if the effects on listed species of these operations under this section remain within the range of those those currently authorized under the ESA, ~~incidental take authorizations~~.

Commented [A34]: Please note recommended changes.

(h) Level of detail required for analysis. In articulating the determinations required under this section, the Secretaries shall fully satisfy the requirements herein but shall not be expected to provide a greater level of supporting detail for the analysis than feasible to provide within the short time frame permitted for timely decision-making in response to changing conditions in the Delta.

(i) Duration. This section shall expire on September 30, 2015.

SEC. 310. EXPEDITING WATER TRANSFERS.

(a) In General.—Section 3405(a) of the Central Valley Project Improvement Act (Public Law 102-575; 106 Stat. 4709(a)) is amended—

(1) by redesignating paragraphs (1) through (3) as paragraphs (4) through (6), respectively;

(2) in the matter preceding paragraph (4) (as so designated)—

(A) in the first sentence, by striking “In order to” and inserting the following:

“(1) IN GENERAL.—In order to”; and

(B) in the second sentence, by striking “Except as provided herein” and inserting the following:

“(3) TERMS.—Except as otherwise provided in this section”; and

(3) by inserting before paragraph (3) (as so designated) the following:

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“(2) EXPEDITED TRANSFER OF WATER.—The Secretary shall take all necessary actions to facilitate and expedite transfers of Central Valley Project water in accordance with—

“(A) this Act;

“(B) any other applicable provision of the reclamation laws; and

“(C) the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).”;

(4) in paragraph (4) (as so designated)—

(A) in subparagraph (A), by striking “to combination” and inserting “or combination”; and

(B) by striking “3405(a)(2) of this title” each place it appears and inserting “(5)”;

(5) in paragraph (5) (as so designated), by adding at the end the following:

“(E) The contracting district from which the water is coming, the agency, or the Secretary shall determine if a written transfer proposal is complete within 45 days after the date of submission of the proposal. If the contracting district or agency or the Secretary determines that the proposal is incomplete, the district or agency or the Secretary shall state with specificity what must be added to or revised for the proposal to be complete.”; and

(6) in paragraph (6) (as so designated), by striking “3405(a)(1)(A)-(C), (E), (G), (H), (I), (L), and (M) of this title” and inserting “(A) through (C), (E), (G), (H), (I), (L), and (M) of paragraph (4)”.

(b) Conforming Amendments.—The Central Valley Project Improvement Act (Public Law 102-575) is amended—

(1) in section 3407(c)(1) (106 Stat. 4726), by striking “3405(a)(1)(C)” and inserting “3405(a)(4)(C)”;

(2) in section 3408(i)(1) (106 Stat. 4729), by striking “3405(a)(1) (A) and (J) of this title” and inserting “subparagraphs (A) and (J) of section 3405(a)(4)”

SEC. 311. WARREN ACT CONTRACTS.

[To be supplied.]

SEC. 312. ADDITIONAL WARREN ACT CONTRACTS.

[To be supplied.]

Commented [A35]: Language was not provided and the Administration takes no position on these sections.

TITLE IV—INCREASING WATER STORAGE

SEC. 401. FINDINGS.

Congress finds that—

(1) the record drought conditions being experienced in the State as of the date of

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enactment of this Act are—

(A) expected to recur in the future; and

(B) likely to do so with increasing frequency;

(2) water storage is an indispensable and integral part of any solution to address the long-term water challenges of the State;

(3) Congress authorized relevant feasibility studies for 4 water storage projects in the State, including projects for—

(A) enlargement of Shasta Dam in Shasta County under section 2(a) of Public Law 96–375 (94 Stat. 1506), as reaffirmed under section 103(d)(1)(A)(i)(I) of Public Law 108–361 (118 Stat. 1684);

(B) enlargement of Los Vaqueros Reservoir in Contra Costa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(i)(II) of Public Law 108–361 (118 Stat. 1684);

(C) construction of North-of-Delta Offstream Storage (Sites Reservoir) in Colusa County under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(I) of Public Law 108–361 (118 Stat. 1684); and

(D) construction of the Upper San Joaquin River storage (Temperance Flat) in Fresno and Madera Counties under section 215 of Public Law 108–7 (117 Stat. 147), as reaffirmed under section 103(d)(1)(A)(ii)(II) of Public Law 108–361 (118 Stat. 1684);

(4)(A) as of the date of enactment of this Act, it has been more than 10 years since the authorization of the feasibility studies referred to in paragraph (3); but

(B) complete and final feasibility studies have not been prepared for any of those water storage projects;

(5) as of August 2014, only 2 of the 4 projects referred to in paragraph (3) have completed draft feasibility studies;

(6) the slow pace of work on completion of the feasibility studies for those 4 water storage projects is—

(A) unjustified; and

(B) of deep concern; and

(7) there is significant public interest in, and urgency with respect to, completing all feasibility studies and environmental reviews for the water storage projects referred to in paragraph (3), given the critical need for that infrastructure to address the water challenges of the State.

SEC. 402. CALFED STORAGE FEASIBILITY STUDIES.

(a) In General.—Notwithstanding subparagraph (B)(i) of section 103(d)(1) of Public Law 108–361 (118 Stat. 1684), the Secretary of the Interior, acting through the Commissioner of

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Reclamation (referred to in this title as the “Secretary”), shall complete a final feasibility study and any other applicable environmental review documents for the project described in—

(1) subparagraph (A)(i)(I) of that section by not later than December 31, 2014;

(2) subparagraph (A)(ii)(II) of that section by not later than July 31, 2015.

(b) Environmental Reviews.—In carrying out subsection (a), the Secretary—

(1) shall ensure that—

(A) all applicable reviews, including reviews required under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), are completed as expeditiously as practicable; and

(B) the shortest applicable process under that Act is used, including in the completion of—

(i) feasibility studies;

(ii) draft environmental impact statements; and

(iii) final environmental impact statements; and

(2) shall not be required to complete a draft or final environmental impact statement if the Commissioner of Reclamation determines, and the Secretary concurs, that the project fails to meet applicable Federal cost-benefit requirements or standards.

(c) Accountability.—

(1) If the Bureau of Reclamation determines that an environmental review document for the water storage projects referenced in of Section 103(d)(1) of P.L. 108-361 will not be completed according to the schedule specified in subsection (a), the Bureau shall notify the Senate Committee on Energy and Natural Resources, the Senate Appropriations Subcommittee on Energy and Water Development, and the House of Representatives Transportation and Infrastructure Committee within 14 days of the determination. The notification shall include:

(A) An explanation of the delay;

(B) The anticipated length of the delay and the revised completion date;

(C) The steps that the Bureau will take to mitigate the delay, including, but not limited to, a request to reprogram existing funds appropriated to the Bureau to meet the revised completion deadline.

(b) The Bureau of Reclamation shall carry out the procedures in subsection (a) for each subsequent delay beyond the revised completion deadline.

SEC. 403. WATER STORAGE PROJECT CONSTRUCTION.

(a) The Secretary, acting through the Commissioner of the Bureau of Reclamation, may partner or enter into an agreement on the water storage projects identified in section 103(d)(1) of the Water Supply Reliability and Environmental Improvement Act (Public Law 108-361) (and Acts supplemental and amendatory to the Act) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments

within the applicable hydrologic region, to advance those projects.

(b) [PLACEHOLDER FOR AUTHORIZATION ISSUE]

SEC. 404. OTHER STORAGE FEASIBILITY STUDIES.

(a) Definition of Qualifying Project.—In this section, the term “qualifying project” means new surface water storage projects constructed on lands administered by the Department of the Interior in a State in which the Bureau of Reclamation has jurisdiction, exclusive of any easement, right-of-way, lease, or any private holding.

(b) Lead Agency.—

(1) QUALIFYING PROJECTS WITHIN JURISDICTION OF BUREAU OF RECLAMATION.—The Bureau of Reclamation shall serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct qualifying projects within the jurisdiction of the Bureau.

(2) QUALIFYING PROJECTS OUTSIDE JURISDICTION OF BUREAU OF RECLAMATION.—If the site of a qualifying project is not located in a State in which the Bureau of Reclamation has jurisdiction, the Secretary shall, by not later than 45 days after the date of receipt of an application for the qualifying project—

(A) designate an alternate agency within the Department of the Interior to serve as the lead agency for purposes of coordinating all reviews, analyses, opinions, statements, permits, licenses, and other approvals or decisions required under Federal law (including regulations) to construct the qualifying project; or

(B) in consultation with the heads of other Federal departments and agencies, identify the appropriate lead agency for the qualifying project.

(c) Cooperating Agencies.—

(1) FEDERAL DEPARTMENTS AND AGENCIES.—The lead agency designated under paragraph (1) or (2) of subsection (b) shall—

(A) as soon as practicable after receipt of an application for a qualifying project, identify any Federal department or agency that may have jurisdiction over a review, permit, license, approval, or decision required for the qualifying project under applicable Federal laws (including regulations); and

(B) as soon as practicable after the date of identification under subparagraph (A)—

(i) notify each applicable department or agency of the identification; and

(ii) designate the department or agency as a cooperating agency, unless the department or agency—

(I) has no jurisdiction or authority with respect to the qualifying project;

(II) has no expertise or information relevant to the qualifying project or any review, permit, license, approval, or decision associated with the qualifying project; or

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(III) does not intend—

(aa) to submit comments regarding the qualifying project; or

(bb) to conduct any review of the qualifying project or make any decision with respect to the qualifying project in a manner other than in cooperation with the Bureau of Reclamation.

(2) STATES.—A State in which a qualifying project is proposed to be carried out may elect, consistent with Federal and State law, to participate as a cooperating agency, if the lead agency designated for the proposed qualifying project under paragraph (1) or (2) of subsection (b) determines that the applicable agency of the State—

(A) has jurisdiction over the qualifying project under applicable Federal or State law;

(B) is required to conduct or issue a review of the qualifying project; and

(C) is required to make a determination regarding issuing a permit, license, or approval of the qualifying project.

(d) Duties of Lead Agency.—

(1) IN GENERAL.—Not later than 30 days after the date of receipt of an application for approval of a qualifying project, the lead agency shall hold a meeting among the applicant, the lead agency, and all cooperating agencies to establish, with respect to the qualifying project, all applicable—

(A) requirements;

(B) review processes; and

(C) stakeholder responsibilities.

(2) SCHEDULE.—

(A) ESTABLISHMENT.—Not later than 30 days after the date of the meeting under paragraph (1), the lead agency, in consultation with the attendees of the meeting, shall establish a schedule for completion of the qualifying project, taking into consideration, among other relevant factors—

(i) the responsibilities of cooperating agencies under applicable laws and regulations;

(ii) the resources available to the cooperating agencies and non-Federal project stakeholders;

(iii) the overall size and complexity of the qualifying project;

(iv) the overall schedule for, and cost of, the qualifying project; and

(v) the sensitivity of the natural and historic resources that may be affected by the qualifying project.

(B) REQUIREMENTS.—On establishment of a schedule for a qualifying project under subparagraph (A), the lead and cooperating agencies shall—

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(i) to the maximum extent practicable, adhere to the schedule; and

(ii) submit to the Committee on Environment and Public Works of the Senate and the Committee on Natural Resources of the House of Representatives on a semiannual basis a report describing any delays in the schedule, including a description of—

(I) the reasons for the delay;

(II) the actions that the lead and cooperating agencies will take to minimize the delay; and

(III) a revised schedule for the qualifying project, if applicable.

(e) Environmental Reviews.—

(1) SINGLE, UNIFIED ENVIRONMENTAL REVIEW DOCUMENT.—

(A) IN GENERAL.—The lead agency with respect to a qualifying project, in consultation with appropriate stakeholders and cooperating agencies, shall determine whether a single, unified environmental review document relating to the qualifying project is sufficient to comply with applicable Federal laws (including regulations), including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) ACTION ON DECLINATION.—If, after consultation under subparagraph (A), a lead agency determines not to adopt a single, unified environmental review document relating to a qualifying project—

(i) the lead agency shall—

(I) document the reasons for the determination; and

(II) submit to the Secretary a report describing those reasons; and

(ii) the Secretary may require the adoption of a single, unified document at the discretion of the Secretary, based on good cause.

(2) ENVIRONMENTAL ASSESSMENT.—Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental assessment is sufficient to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

(A) the public comment period for a draft environmental assessment shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental assessment by not later than 180 days after the end of the period for public comments on the draft environmental assessment.

(3) ENVIRONMENTAL IMPACT STATEMENT.— Except as provided under paragraph (4), if the lead agency with respect to a qualifying project, in consultation with cooperating agencies, determines that an environmental impact statement is required to comply with the requirements of this subsection and other applicable Federal laws (including regulations)—

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(A) the public comment period for a draft environmental impact statement shall be no more than 60 days after publication in the Federal Register of notice of the public issuance of that draft; and

(B) the lead agency shall issue the final environmental impact statement by not later than 1 year after the end of the period for public comments on the draft environmental impact statement.

(4) MODIFICATION OF SCHEDULE.—In carrying out paragraphs (2) and (3),

(A) the lead agency with respect to a qualifying project may modify the schedule of the qualifying project if:

(i) the Federal lead agency can demonstrate good cause, such as the need for additional time to comply with other statutory or regulatory requirements other than the National Environmental Policy Act of 1969, and the head of that agency submits to Congress a written determination describing the cause and reasons for the modification no less than 30 days before the original scheduled deadline; or

(ii) the Federal lead agency, the project sponsor, the joint lead agency (as applicable), and all participating and cooperating agencies agree to such modification.

(B) no modification pursuant to subparagraph (4)(A) shall postpone the issuance of a final environmental assessment by more than 1 year, or a final environmental impact statement by more than 2 years, unless the conditions under (4)(A)(i) or (4)(A)(ii) are met.

(C) If a modification occurs pursuant to this paragraph, the Federal lead agency shall issue and adhere to the revised schedule unless the conditions under (4)(A)(i) or (4)(A)(ii) are met.

(5) REQUIREMENTS.—On commencement of the environmental review process under this subsection, the lead and cooperating agencies shall, as soon as practicable—

(A) make available to all stakeholders of the qualifying project information regarding—

(i) the environmental and socioeconomic resources located within the area of the qualifying project; and

(ii) the general locations of the alternatives under consideration; and

(B) identify any issues of concern regarding the potential environmental or socioeconomic effects of the qualifying project, including any issues that could substantially delay or prevent an agency from granting a permit or other approval that is needed for a study relating to the qualifying project.

(f) Concurrent Review Actions.—

(1) IN GENERAL.—Any review, analysis, permit, license, approval, or decision regarding a qualifying project made by a Federal, State, or local government agency shall be—

(A) conducted, to the maximum extent practicable, concurrently with any other

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applicable government agency; and

(B) incorporated in the schedule for the qualifying project under subsection (d)(2).

(2) REQUIREMENT.—The lead and cooperating agencies for a qualifying project shall formulate and implement administrative, policy, and procedural mechanisms to enable adherence to the schedule for the qualifying project in a timely, coordinated, and environmentally responsible manner.

(3) GUIDANCE.—The Secretary shall issue guidance regarding the use of programmatic approaches to carry out the environmental review process that, to the maximum extent practicable—

(A) eliminates repetitive discussions of the same issues;

(B) focuses on the actual issues ripe for analysis at each level of review;

(C) establishes a formal process for coordinating with participating and cooperating agencies, including the establishment of a list of all data required to carry out an environmental review process; and

(D) complies with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and all other applicable laws and regulations.

(g) Administrative Record and Data Management.—

(1) IN GENERAL.—The lead agency shall—

(A) be responsible for compiling the administrative record of the information used as the basis for decisions relating to a qualifying project; and

(B) to the maximum extent practicable and consistent with Federal law, make available all data regarding the qualifying project in a format that is accessible via electronic means for project stakeholders, cooperating agencies, and the public.

(2) REPORTS.—Not less frequently than once each year, the lead agency shall submit a progress report regarding a qualifying project to project stakeholders, cooperating agencies, the Committee on Environment and Public Works of the Senate, and the Committee on Natural Resources of the House of Representatives.

(h) Participation by Non-Federal Project Sponsors.—

(1) APPLICATION TO SERVE AS COOPERATING AGENCY.—A non-Federal sponsor of a qualifying project may submit to the lead Secretary an application to serve as a cooperating agency of the qualifying project for purposes of preparing any necessary documents relating to the qualifying project, including an environmental review, if—

(A) the non-Federal sponsor is a public agency as defined under the laws of the state in which the agency is located;

(B) the non-Federal sponsor agrees to adhere to—

(i) all required Federal laws (including regulations) in carrying out the qualifying project; and

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(ii) all decisions regarding the qualifying project that have been agreed on by other stakeholders of the qualifying project; and

(C) the applicable lead agency certifies that participation by the non-Federal sponsor will not inappropriately bias the qualifying project in favor of the non-Federal sponsor.

(2) FUNDS.—Any funds contributed by a non-Federal sponsor to a qualifying project—

(A) may be accepted to maintain or accelerate progress on the qualifying project, subject to the condition that the Secretary shall—

(i) review the use of the funds; and

(ii) certify in writing that the funds—

(I) are used solely to complete applicable environmental reviews; and

(II) do not unduly influence any permit or approval decision regarding the qualifying project; and

(B) shall be applied toward the non-Federal cost-share of the qualifying project.

(i) Applicability to Calfed Storage Studies.—For any feasibility study referred to in section 401(3), this section shall apply to all activities to be carried out under the study on or after the date of enactment of this Act that would lead to congressional authorization of an applicable project for construction.

SEC. 405. DAM SAFETY PROJECTS WITH INCREASED STORAGE COMPONENT.

(a) Additional Project Benefits.—The Reclamation Safety of Dams Act of 1978 is amended—

(1) in section 3 (43 U.S.C. 507), by striking “Construction” and inserting “Except as provided in section 5B, construction”; and

(2) by inserting after section 5A (43 U.S.C. 509a) the following:

“SEC. 5B. ADDITIONAL PROJECT BENEFITS.

“(a) In General.—Notwithstanding section 3, if the Secretary, in the judgment of the Secretary, makes a determination described in subsection (b), the Secretary is authorized to develop any additional project benefit—

“(1) through the construction of new or supplementary works on a project in conjunction with the activities carried out by the Secretary pursuant to section 2; and

“(2) subject to the conditions described in the feasibility study relating to the project.

“(b) Description of Determination.—A determination referred to in subsection (a) is a determination by the Secretary that—

“(1) an additional project benefit, including but not limited to additional conservation storage capacity, is—

“(A) necessary; and

Commented [A36]: The Administration has concerns with amending the Safety of Dams Act. See suggested technical assistance below.

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“(B) in the interests of the United States; and

“(2) the project [benefit] proposed to be carried out is—

“(A) feasible; and

“(B) not inconsistent with the purposes of this Act.

“(c) Requirements.—The costs associated with developing an additional project benefit under this section shall be—

“(1) allocated to the authorized purposes of the structure, provided that agreement on project benefits and allocable costs is reached among state and federal funding agencies; and

“(2) repaid in accordance with all applicable provisions of Federal reclamation law (the Act of June 17, 1902 (32 Stat. 388, chapter 1093), and Acts supplemental to and amendatory of that Act (43 U.S.C. 371 et seq.).”.

(b) San Luis Reservoir Expansion.—Section 103(f)(1)(A) of Public Law 108–361 (118 Stat. 1694) is amended—

(1) by striking “Funds” and inserting the following:

“(i) IN GENERAL.—Funds”; and

(2) by adding at the end the following:

“(ii) ENVIRONMENTAL REVIEWS AND FEASIBILITY STUDY.—The Commissioner of Reclamation shall submit [to Congress]—

“(I) an expansion draft environmental impact statement and feasibility study relating to the San Luis Reservoir by not later than April 1, 2016; and

“(II) a final environmental impact statement relating to the San Luis Reservoir by not later than December 31, 2016.”.

SEC. 406. UPDATING WATER OPERATIONS MANUALS FOR NON-FEDERAL PROJECTS.

(a) Definitions.—In this section:

(1) NON-FEDERAL PROJECT.—

(A) IN GENERAL.—The term “non-Federal project” means a non-Federal reservoir project operated for flood control in accordance with rules prescribed by the Secretary pursuant to section 7 of the Act of December 22, 1944 (commonly known as the “Flood Control Act of 1944”) (58 Stat. 890, chapter 665).

(B) EXCLUSION.—The term “non-Federal project” does not include any dam or reservoir owned by—

(i) the Bureau of Reclamation; or

(ii) the Corps of Engineers.

Commented [A37]: Allocating the costs of additional storage benefits among all authorized purposes potentially has the taxpayer supporting a portion of the cost of additional storage. Any additional costs of additional storage should be paid by those receiving the benefit. Stand ready to work with the bill author to address these concerns.

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(2) OWNER.—The term “owner” with respect to a non-Federal project, does not include—

(A) the Secretary;

(B) the Secretary of the Interior; or

(C) the head of any other Federal department or agency, notwithstanding any Federal monetary contribution made toward the construction cost of the relevant non-Federal project, if the contribution is predicated on flood control or other specific benefit.

(3) SECRETARY.—The term “Secretary” means the Secretary of the Army.

(b) Review by Secretary.—

(1) IN GENERAL.—Not later than 1 year after the date of receipt of a request from the owner of a non-Federal project, the Secretary, in consultation with the owner, shall review the water control manual and flood control rule curves and any operational or structural modifications proposed by the owner, including the use of improved weather forecasting and run-off forecasting methods, to enhance the existing purposes of the non-Federal project.

(2) REPORT.—Not later than 90 days after the date of completion of a review under paragraph (1), the Secretary shall submit to the owner of the applicable non-Federal project a report describing the results of the review.

(3) PRIORITY.—In carrying out of this subsection, the Secretary shall give priority to review and revision of water control manuals and flood control rule curves for any non-Federal project—

(A) that is located in a State in which a drought emergency has been declared during the 1-year period ending on the date of review by the Secretary;

(B) the owner of which has submitted to the Secretary a formal request to review or revise the operations manual or rule curves to accommodate new watershed data or proposed project modifications or operational changes;

(C) the water control manual and hydrometeorological information establishing the flood control rule curves of which have not been revised during the 20-year period ending on the date of review by the Secretary;

(D) with respect to which a completed probable maximum flood analysis or other data indicates that revisions of the project control manual or rule curves are likely to enhance water supply benefits and flood control operations; and

(E) modifications or operational changes proposed by the owner of which are likely to enhance water supply benefits and flood control operations.

(4) NON-FEDERAL CONTRIBUTIONS.—The Secretary may accept non-Federal funds for all or a portion of the cost of carrying out a review or revision of water control manuals and rule curves for non-Federal projects under this subsection.

SEC. 407. CENTRAL VALLEY PROJECT.

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(a) Cooperative Agreements.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, to determine the feasibility of an agreement for long-term use of an existing or expanded non-Federal storage or conveyance facility to augment Federal water supply, ecosystem, and operational flexibility benefits, the Secretary shall offer to enter into cooperative agreements with non-Federal entities to provide replacement water supplies for drought relief for—

(A) contractors of the Central Valley Project (as defined in section 3403 of the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706));

(B) units of the National Wildlife Refuge System;

(C) State wildlife areas; and

(D) private wetland areas.

(2) REQUIREMENTS.—A cooperative agreement under this subsection shall—

(A) include the purchase of storage capacity in non-Federal facilities from willing sellers; and

(B) provide reimbursement for the temporary use of available capacity in existing above-ground, off-stream storage and associated conveyance facilities owned by local water agencies.

(b) Report.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Chief of the National Wildlife Refuge System and contractors of the Central Valley Project a report describing the feasibility of the agreement for long-term use described in subsection (a)(1).

TITLE V—WATER RIGHTS PROTECTIONS

SEC. 501. PROTECTIONS FOR STATE WATER PROJECT CONTRACTORS.

If, as a result of the application of this Act, the California Department of Fish and Wildlife:

(a) revokes the consistency determination pursuant to California Fish and Game Code section 2080.1;

(b) amends or issues a new consistency determination pursuant to California Fish and Game Code section 2080.1 in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the Salmonid Biological Opinion; or

(c) requires take authorization under section 2081 for operation of the State Water Project in a manner that results in reduced water supply to the State Water Project as compared with the water supply available under the Smelt Biological Opinion and the

Commented [A38]: We have not had a chance to fully analyze this Title. We will however continue to evaluate this section and reserve our rights with respect to the ability to provide technical feedback at that time.

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Salmonid Biological Opinion,

the water supply benefits of such action by the California Department of Fish and Wildlife accruing to the Central Valley Project, if any, shall be shared equally with the State Water Project.

SEC. 502. AREA OF ORIGIN PROTECTIONS.

(a) The Secretary of the Interior (Secretary) is directed in the operation of the Central Valley Project (CVP) to adhere to California's water rights laws governing water rights priorities by honoring water rights senior to those held by the United States for operation of the CVP, regardless of the source of priority, including any appropriative water rights initiated prior to December 19, 1914, as well as water rights and other priorities perfected or to be perfected pursuant to California Water Code Part 2 of Division 2. Article 1.7 (commencing with section 1215 of Chapter 1 of Part 2 of Division 2, Sections 10505, 10505.5, 11128, 11460, 11461, 11462 and 11463, and Sections 12200 to 12220, inclusive).

(b) Any action that requires that diversions be bypassed or that involves the release of water from any CVP water storage facility taken by the Secretary or the Secretary of the Department of Commerce pursuant to Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531, et seq.) shall be applied in a manner that is consistent with water rights priorities established by California law.

SEC. 503. NO REDIRECTED ADVERSE IMPACTS.

The Secretary shall ensure that, except as otherwise provided for in a water service or repayment contract, actions taken in compliance with legal obligations imposed pursuant to or as a result of this Act, including, but not limited to, such actions under the Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.) and other federal laws, shall not cause redirected adverse water supply or fiscal impacts to those within the Sacramento River Watershed or the State Water Project.

SEC. 504. EFFECT ON STATE LAWS.

Nothing in this Act preempts any State law in effect on the date of enactment of this Act, including area of origin and other water rights protections.

TITLE VI—MISCELLANEOUS

SEC. 601. AUTHORIZED SERVICE AREA.

(a) In General.—The authorized service area of the Central Valley Project authorized under the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) shall include the area within the boundaries of the Kettleman City Community Services District, California, as in existence on the date of enactment of this Act.

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(b) Long-term Contract.—

(1) IN GENERAL.—Notwithstanding the Central Valley Project Improvement Act (Public Law 102–575; 106 Stat. 4706) and subject to paragraph (2), the Secretary of the Interior, in accordance with the reclamation laws, shall enter into a long-term contract with the Kettleman City Community Services District, California, under terms and conditions mutually agreeable to the parties, for the delivery of up to 900 acre-feet of Central Valley Project water for municipal and industrial use.

(2) LIMITATION.—Central Valley Project water deliveries authorized under the contract entered into under paragraph (1) shall be limited to the minimal quantity necessary to meet the immediate needs of the Kettleman City Community Services District, California, in the event that local supplies or State Water Project allocations are insufficient to meet those needs.

(c) Permit.—The Secretary shall apply for a permit with the State for a joint place of use [for water deliveries authorized under the contract entered into under subsection (b)? with respect to the expanded service area under subsection (a)?], consistent with State law.

(d) Additional Costs.—If any additional infrastructure, water treatment, or related costs are needed to implement this section, those costs shall be the responsibility of the non-Federal entity.

SEC. 602. RESCHEDULED WATER.

(a) In General.—In connection with operations of the Central Valley Project, California, if the San Luis Reservoir does not fill by the last day of February of any year, the Secretary of the Interior shall permit any entity with an agricultural water service or repayment contract for the delivery of water from the Delta Division or the San Luis Unit to reschedule into the immediately following contract year (March 1 through the last day of February) any unused Central Valley Project water previously allocated for irrigation purposes.

(b) Apportionment.—If water remaining in Federal storage in San Luis Reservoir on the last day of February of any year is insufficient to meet all rescheduling requests under subsection (a), the Secretary of the Interior shall, based on contract quantity, apportion among all contractors that request to reschedule water all water remaining in San Luis Reservoir on the last day of February of the applicable year.

(c) Availability of Additional Water.—The Secretary shall make all reasonable efforts to make available additional rescheduled water, if the efforts do not interfere with the Central Valley Project operations in the contract year for which Central Valley Project water has been rescheduled.

SEC. 603. FISHERIES DISASTER DECLARATION.

[TO BE SUPPLIED.]

SEC. 604. OVERSIGHT BOARD FOR RESTORATION FUND.

(a) Report; Advisory Board.—Section 3407 of the Central Valley Project Improvement Act

Commented [A39]: Language has not been provided and the Administration is unable to make recommendations.

Commented [A40]: Still reviewing and per note below reserve the right to provide additional feedback.

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(Public Law 102–575; 106 Stat. 4726) is amended by adding at the end the following:

“(g) Report on Expenditure of Funds.—

“(1) IN GENERAL.—For each fiscal year, the Secretary, in consultation with the Advisory Board, shall submit to Congress a plan for the expenditure of all of the funds deposited into the Restoration Fund during the preceding fiscal year.

“(2) CONTENTS.—The plan shall include an analysis of the cost-effectiveness of each expenditure.

“(h) Advisory Board.—

“(1) ESTABLISHMENT.—There is established the Restoration Fund Advisory Board (referred to in this section as the ‘Advisory Board’), which shall be composed of 14 members appointed by the Secretary.

“(2) MEMBERSHIP.—

“(A) IN GENERAL.—The Secretary shall appoint members to the Advisory Board that represent the various Central Valley Project stakeholders, of whom—

“(i) 3 members shall be agricultural users of the Central Valley Project;

“(ii) 2 members shall be municipal and industrial users of the Central Valley Project;

“(iii) 3 members shall be power contractors of the Central Valley Project;

“(iv) 1 member shall be a representative of a federal wildlife refuge that contracts for Central Valley Project water supplies with the Bureau of Reclamation;

“(v) 1 member shall represent nongovernmental organizations involved in the protection and restoration of California fisheries;

“(vi) 1 member shall represent the commercial fishing industry;

“(vii) 1 member shall represent the recreational fishing industry; and

“(viii) 2 members shall be appointed at the discretion of the Secretary.

“(B) OBSERVER.—The Secretary and the Secretary of Commerce may each designate a representative to act as an observer of the Advisory Board.

“(C) CHAIRMAN.—The Secretary shall appoint 1 of the members described in subparagraph (A) to serve as Chairman of the Advisory Board.

“(3) TERMS.—The term of each member of the Advisory Board shall be 4 years.

“(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

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“(5) Vacancies.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(C) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

“(6) Removal —A Member of the Panel may be removed from office by the Secretary of the Interior.

“(7) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act.

“(8) DUTIES.—The duties of the Advisory Board are—

“(A) to meet not less frequently than semiannually to develop and make recommendations to the Secretary regarding priorities and spending levels on projects and programs carried out under this title;

“(B) to ensure that any advice given or recommendation made by the Advisory Board reflects the independent judgment of the Advisory Board;

“(C) not later than December 31, 2015, and annually thereafter, to submit to the Secretary and Congress the recommendations under subparagraph (A); and

“(D) not later than December 31, 2015, and biennially thereafter, to submit to Congress a report that details the progress made in achieving the actions required under section 3406.

“(9) ADMINISTRATION.—With the consent of the appropriate agency head, the Advisory Board may use the facilities and services of any Federal agency.”

“(10) Cooperation and Assistance.—

(A) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(B) Space and Assistance.—The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 605. WATER OPERATIONS REVIEW PANEL.

(a) Establishment.—There is established a panel to be known as the “Water Operations Review Panel”.

(b) Membership.—

Commented [A41]: There may be unintended consequences to waving FACA. May want to consider some of the organizational/structural aspects of FACA.

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(1) COMPOSITION.—The Panel shall be composed of 5 members appointed by the Secretary of the Interior, in consultation with the Secretary of Commerce, of whom—

(A) 1 member shall be a former State elected official, who shall be the Chairperson of the Panel;

(B) 2 members shall be fisheries biologists, of whom—

(i) 1 member shall have expertise in Delta smelt; and

(ii) 1 member shall have expertise in salmonids; and

(C) 2 members shall ~~have~~ be engineers with substantial expertise in water operations.

(2) RECOMMENDATIONS. —The Secretary of the Interior shall consider the recommendations

(A) of the Governor of the State for the member appointed under subparagraph (1)(A);

(B) of the Director of the California Department of Water Resources for one of the members appointed under subparagraph (1)(C).

(3) PROHIBITION ON FEDERAL GOVERNMENT EMPLOYMENT.—For at least three years prior to appointment to the Panel, an individual appointed to the Panel under paragraph (1) shall not have been an employee of the Federal Government.

(4) DATE OF APPOINTMENTS.—The appointment of a member of the Panel shall be made not later than—

(A) the date that is 120 days after the date of enactment of this Act; or

(B) in the case of a vacancy on the Panel described in subsection (c)(2), the date that is 120 days after the date on which the vacancy occurs.

(c) Term; Vacancies.—

(1) TERMS.—A member of the Panel shall be appointed for a term of 3 years, except that, with respect to the members first appointed under this section—

(A) the Chairperson shall be appointed for a term of 3 years;

(B) of the members appointed under subsection (b)(1)(B)—

(i) 1 member shall be appointed for a term of 1 year; and

(iii) 1 member shall be appointed for a term of 2 years;

(C) of the members appointed under subsection (b)(1)(C)—

(i) 1 member shall be appointed for a term of 1 year; and

(ii) 1 member shall be appointed for a term of 2 years.

(2) VACANCIES.—

(A) IN GENERAL.—A vacancy on the Panel shall be filled in the manner in which the original appointment was made and shall be subject to any conditions that applied with

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respect to the original appointment.

(B) FILLING UNEXPIRED TERM.—An individual chosen to fill a vacancy shall be appointed for the unexpired term of the member replaced.

(3) EXPIRATION OF TERMS.—The term of any member shall not expire before the date on which the successor of the member takes office.

(d) Removal. —A Member of the Panel may be removed from office by the Secretary of the Interior.

(e) Federal Advisory Committee Act. —The Panel shall not be subject to the requirements of the Federal Advisory Committee Act

(f) Duties.

(1) Assessment and Report on Agencies' Operational Decisions under this Act.—

(A) IN GENERAL.—No later than November 30, 2015, and annually no later than November 30 thereafter, the Panel shall report an assessment of the agencies' operational decisions under this Act and recommendations for the prospective implementation of this Act to the following Congressional committees:

(i) Senate Committee on Environment and Public Works;

(ii) Senate Appropriations Subcommittee on Energy and Water Development;

(iii) House Natural Resources Committee; and

(iv) House Appropriations Subcommittee on Energy and Water Development.

(B) RETROSPECTIVE ASSESSMENT.—In making the retrospective assessment under paragraph (1), the Panel shall review and evaluate the Director of the Fish and Wildlife Service, Administrator of NOAA Fisheries, and Commissioner of Reclamation's —

(i) decisions in implementing this Act and other Federal laws applicable to the operations of the Central Valley Project and the State Water Project;

(ii) compliance with the Endangered Species Act in relation to operations of the Central Valley Project and the State Water Project; and

(iii) efforts to minimize water supply disruptions while complying with the Endangered Species Act and this Act.

(C) PROSPECTIVE RECOMMENDATIONS.—The Panel shall make recommendations for prospective actions and potential actions warranting further study to better achieve the purposes of this Act and the Endangered Species Act as applied to the operations of the Central Valley Project and the State Water Project, including proposals—

(i) that in combination, both increase the survival of listed species and increase water supplies for the Central Valley Project and the State Water Project;

(ii) to increase the survival of listed fish species with little to no adverse effects on water supplies for the Central Valley Project and the State Water Project;

(iii) to increase such water supplies with little to no adverse effects on the survival

Commented [A42]: There may be unintended consequences to waving FACA. May want to consider some of the organizational/structural aspects of FACA.

Commented [A43]: Compared to what? Their 100% allocations? The average of the last 5 years? Allocation from the same water year type in the past?

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of listed fish species; and

(iv) that respond to the annual Delta Science Program Independent Review Panel reports on the Long-term Operations Opinions.

(2) Submission of Comments and Proposals to Panel.—

(A) IN GENERAL.—In preparing the reports under subsections (a) and (b), the Panel shall invite comments and proposals from any interested person.

(B) SCHEDULE.—The Panel shall publish a schedule for receipt of comments and proposals under paragraph (1), together with instructions for how to submit the comments and proposals.

(f) Cooperation and Assistance. ---

(1) Upon request of the Panel Chairperson for information or assistance to facilitate the carrying out of this section, the Secretary of Commerce and the Secretary of the Interior shall promptly provide such information, unless otherwise prohibited by law.

(2) Space and Assistance --- The Secretary of the Interior shall provide the Panel with appropriate and adequate office space, together with such equipment, office supplies, and communications facilities and services as may be necessary for the operation of the Panel, and shall provide necessary maintenance services for such offices and the equipment and facilities located therein.

SEC. 606. CONTINGENCY IN EVENT OF CONTINUING RESOLUTION FOR FISCAL YEAR 2015.

If a resolution providing continuing appropriations for the Fish and Wildlife Service or the National Marine Fisheries Service for fiscal year 2015 is enacted for any date on or after January 1, 2015, and the Secretaries have consulted with the California Department of Water Resources, Central Valley Project and State Water Project contractors, and the Interagency Ecological Program about any possible funding shortfall, the deadlines that apply to each respective Secretary, or agency, contained in sections _____ shall be extended by the number of days such resolution providing continuing appropriations applied to each agency.

SEC. 607. SUNSET OF CERTAIN PROVISIONS.

The provisions in Titles I and II, with the exception of sections 204 and 205, shall expire if, at any time seven or more years after the date of enactment of this Act, the Secretary of the Interior and the Governor of California jointly certify that:

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1) The reliability and adequacy water supply reliability of the Central Valley Project and the State Water Project water supplies for meeting the needs for reasonable and beneficial uses of water have significantly improved since prior to the date of enactment of this Act, independent of changes in precipitation or differences in hydrological year classifications; and

2) Such improvements in water supply reliability and adequacy are likely to be durable for at least a decade.

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Numbering Style: 1, 2, 3, ... + Start at: 1 + Alignment: Left +
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SEC. 303. OPERATIONAL FLEXIBILITY IN TIMES OF DROUGHT

Commented [A44]: Suggested Alternative Language we have
previously provided.

(1) IN GENERAL.—In response to the declaration of a state of drought emergency by the Governor of California and for the period of time such the severe drought remains in effect as determined by the United States Drought Monitor, the Secretaries shall seek to enhance operational flexibility in the operations of the CVP and the State Water Project to alleviate the adverse effects of the drought on water supplies, imperiled species, and water quality through the development of a 2015 Drought Operations Plan. This 2015 Drought Operations Plan, consistent will applicable law, will seek to provide the maximum quantity of water supplies possible to Central Valley Project agricultural, municipal and industrial, and refuge water service and repayment contractors, State Water Project contractors, and any other locality or municipality in the State, by approving, consistent with applicable federal and state laws (including regulations) and protection of public health and safety, projects and operations to provide additional water supplies as quickly as possible based on the best scientific information available to address the emergency conditions.

(a) Preparation of a Drought Operations Plan - The Secretaries shall develop and implement a Drought Operations Plan by March 1 that maximizes water deliveries for CVP and SWP contractors while also meeting all applicable legal standards, including those established in this Act. The Secretaries shall be authorized to make adjustments to the plan during the water year based on changes in hydrology or as conditions warrant. The Secretaries shall be authorized to make adjustments consistent with applicable law and regulations prior to March 1st, as necessary to meet the purposes of this section.

(b) Plan Content. —In carrying out subsection (a), the Secretaries shall, consistent with applicable laws and regulations,

- i. Evaluate new information on species distribution through enhanced monitoring and/or modeling;
- ii. Identify operations, with accompanying modelling, necessary to preserve cold water in reservoirs for salmon needs while maintaining Delta needs;

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- 1 iii. Identify modification to Delta cross channel gate operations, to address adverse
- 2 effects of operations on water quality or fish migrations as per Operations in the
- 3 2014 Drought Operations Plan;
- 4 iv. Encourage the CVP to vary the export/info ratio as per D-1641 Operations in the
- 5 2014 Drought Operations Plan;
- 6 v. Analyze potential operational scenarios during early season storms that may occur
- 7 prior to January 1, 2015, including a scenario for -7500 cfs average OMR during
- 8 December 2014, and alternative scenarios that might be implemented in the event
- 9 environmental conditions or fish distribution indicate that the thresholds and
- 10 criteria triggering Component 1, Action 1 of the 2008 FWS operations BiOp
- 11 might soon be met.
- 12 vi. Monitor and act upon the declaration of critically dry years for purposes of
- 13 enabling the use of the San Joaquin April-May 1:1 inflow/export ratio to enhance
- 14 early spring exports;
- 15 vii. Consider, through the NMFS adaptive management 2009 Biop provisions,
- 16 adjustment to the San Joaquin I:E ratio to provide for San Joaquin origin water
- 17 transfers to be exported at a 1:1 ratio irrespective of water year type, including
- 18 any additional monitoring, operational adjustments or offsets that may be needed
- 19 to conserve species;
- 20 viii. Consider, through the NMFS adaptive management 2009 Biop provisions,
- 21 adjustment of the January 1st on-set of -5000 OMR to reflect real-time migration
- 22 information on Winter-run Chinook salmon;
- 23 ix. Identify any temporary emergency barriers that may be needed for purposes of
- 24 salinity control; and
- 25 x. Identify other actions necessary to conserve species, including additional
- 26 monitoring, hatchery and/or habitat actions.

27 (2) APPLICATION.— In addition to the Central Valley Project, paragraph (1) also applies to

28 projects or operations involving the Klamath Project if the projects or operations would benefit

29 Federal water service and repayment contractors in California.

30 (b) Limitation.—Nothing in this section allows agencies to approve projects—

31 (1) that would otherwise require congressional authorization; or

32 (2) without following applicable law and regulations.

From: Watts, John (Feinstein)

Sent: Tuesday, September 30, 2014 1:12 PM

To: 'Tom Birmingham'

CC: Bernhardt, David L.

Subject: Did you have any further thoughts about the Administration's proposal to

Substitute their 2015 drought plan language, with modifications to include our language on the i/e ratio, for section 303 (and possibly also sections 304 and 305) of our proposal? Can you let me know your thoughts on this today?

Thanks.

From: Tom Birmingham
Sent: Tuesday, September 30, 2014 4:14 PM
To: 'Watts, John (Feinstein)'
CC: 'Bernhardt, David L.'
Subject: RE: Did you have any further thoughts about the Administration's proposal to

John,

I apologize for the delay in responding to your inquiry, but I have just now finished my meetings today. (It's hell trying to manage a water agency.) I believe that the provisions on 2015 drought operations in the existing proposal are much better than what the administration has proposed, and I would encourage you to maintain those provisions. I don't understand why the administration would object to having the discretion and authority provided by the existing language, other than the agencies like the status quo.

Tom

From: Watts, John (Feinstein) [mailto:John_Watts@feinstein.senate.gov]
Sent: Tuesday, September 30, 2014 1:12 PM
To: 'Tom Birmingham'
Cc: Bernhardt, David L.
Subject: Did you have any further thoughts about the Administration's proposal to

Substitute their 2015 drought plan language, with modifications to include our language on the i/e ratio, for section 303 (and possibly also sections 304 and 305) of our proposal? Can you let me know your thoughts on this today?

Thanks.